Wildland Fire Information and Technology

Strategy, Governance, and Investments

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"We will fundamentally improve the way we conduct information and technology business, not just refine existing silos"

INTERAGENCY WILDLAND FIRE ROADMAP TEAM

FALL 2011

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EXECUTIVE SUMMARY

This report culminates several years of discussion and analysis within the Department of the Interior (DOI) and USDA Forest Service (FS) and dates to the formation of the National Wildland Fire Coordinating Group (NWCG) in the mid-1970s. At that time, there was discussion of interagency wildland fire information technology coordination and standards as part of the creation of the NWCG.

In 1996 the NWCG developed an *Information Resource Management (IRM) Strategy Project and Wildland Fire Business Model* report that identified the need for an enterprise architecture program to help the interagency wildland fire community modernize its IT support. In May 2004 the Wildland Fire Leadership Council chartered the development of a wildland fire enterprise architecture to provide a means for increasing IT efficiency and eliminating redundant IT investments. In 2008, a "Modernization Blueprint" was developed for the NWCG and in July 2008 the Fire Executive Council approved the Modernization Blueprint and forwarded it to the Chief Architects of the Department of the Interior and the USDA Forest Service for their review and approval. In September 2010 the Department of the Interior Investment Review Board (IRB) approved the National Wildland Fire Enterprise Architecture (NWFEA) Modernization Blueprint with conditions. This document has yet to be formally approved by the USDA Forest Service.

In February 2011 the Department of the Interior Deputy Assistant Secretary for Law Enforcement, Security, and Emergency Management and the USDA Forest Service Deputy Chief for State and Private Forestry issued a memorandum directing their agencies to chart a course for the implementation of the National Wildland Fire Enterprise Architecture Blueprint. In response to the memorandum, on July 15, 2011, a report titled *"Implementing the National Wildland Fire Enterprise Architecture Blueprint"* was completed and submitted for approval. As a result of that approval, the Deputy Chief and Deputy Assistant Secretary asked their Senior Advisors to undertake two tasks:

(1) Develop a single, executive level governance body and structure for wildland fire information and technology investments and activities
(2) Develop a common wildland fire information and technology vision and strategy for use in evaluating current and new investments.

As work began on these two tasks the Department of the Interior began work on six pilot efforts to development "roadmaps" lead by business executives to produce comprehensive, strategic approaches to management of all investments within specified lines of business. Wildland fire was designated as one of the pilot areas for a roadmap. Thus, much of the work to address the two above tasks took place in the context of the roadmap pilots.

This document is the result of our work on these two tasks. It presents an interagency, integrated approach to a wildland fire information and technology management program in support of the business mission activities of wildland fire. The program is comprised of four major sections:

- ✓ Section 1: Strategy
- ✓ Section 2: Governance and Management
- ✓ Section 3: Investment
- ✓ Section 4: Implementation

The results and recommendations presented here reflect years of experience within the interagency wildland fire community with respect to use and management of information and

technology in support of the wildland fire mission. These results and recommendations also reflect the experience, knowledge, and wisdom of a working group of business and technical experts from all facets of the wildland fire community, working in collaboration and support of our efforts.

The information and technology program we propose builds on the current capabilities of the interagency community. However, our proposition is not simply a tweaking or fine tuning of current business practices. We propose six fundamentally different ways to conduct business in wildland fire information and technology:

ONE: SHARED VISION AND STRATEGY THAT GUIDES ALL INVESTMENTS, WITH PROGRAM MANAGEMENT COMMITMENT TO ADHERE TO THAT VISION AND STRATEGY

TWO: AGREEMENT FROM BOTH OF OUR DEPARTMENTS TO GIVE SINGLE, COMMON DIRECTION, GUIDANCE, AND APPROVAL TO INVESTMENT DECISIONS

THREE: DEVELOPMENT OF, AND ADHERENCE TO, A FIVE-YEAR ROLLING INVESTMENT PLAN TO ENSURE THAT INVESTMENTS SUPPORT THE BUSINESS WITH BEST VALUE

FOUR: LIFE-CYCLE MANAGEMENT OF ALL INVESTMENTS

FIVE: A GOVERNANCE AND MANAGEMENT STRUCTURE THAT RESPECTS AGENCY ORGANIZATIONS WHILE EFFICIENTLY ORGANIZING AND MANAGING THE WORK

Vision and Strategy

The Strategy section describes a new paradigm for use of information and technology in support of the business mission of the interagency wildland fire program. Fundamental to this vision is providing information and technology services and functions independent of agency or location of user in a manner that provides flexibility and adaptability.

The Strategy for wildland fire information and technology is built upon the concepts and practices of service oriented architecture that focuses on components that can be used and reused in various combinations to provide services to multiple business functions in a more effective and efficient manner. These components are supported and enabled by an integrated data environment in which accurate and consistent data are shared and readily available when appropriate to any application or user.

Traditionally applications, data bases, and services have been stove-piped around functional areas within wildland fire, often using "vertically integrated" approaches in which data, applications, and delivery are re-created for each function rather than shared among functions and users. This traditional approach has created duplication of effort, inconsistent and unreliable data, and difficulty in communication across agency and functional lines. Further, an increasingly mobile and dispersed workforce requires tools and capabilities to function regardless of location or agency.

This Strategy for information and technology in support of wildland fire is built on four principal concepts:

- Mission requirements drive integrated, modular based applications and tools
- Authoritative data are readily available for all uses and users
- Interconnection and accessibility regardless of organization affiliation or user location

- Technology, research, and innovation enable and enhance mission accomplishment

Governance and Management

The Governance and Management section lays out an integrated and cohesive approach for information and technology program governance and management while maintaining the integrity of the reporting relationships of personnel within the USDA Forest Service and Department of the Interior wildland fire management programs. This structure provides a clear, single interface point between the wildland fire "line of business" and the investment decision-making structures of the two agencies. As such, this structure provides single, unified capability to identify requirements and priorities, to efficiently make investment decisions, and to manage all of those investments as a single portfolio.

Key features of the governance and management structure are:

- A single inter-departmental investment review board decision making process
- A set of interconnected "boards" that provide direction, oversight, project development, and steady state operations and maintenance
- Advisory boards that provide clear paths for requirements and priorities to be identified, innovative approaches to be considered, and research and development needs identified
- Standardized business processes for investment planning, life-cycle management, and project and investment management
- Timely decisions
- Oversight and accountability
- Compliance with agency policies and procedures
- Well defined functions, roles, and responsibilities

This structure and approach is predicated on the USDA Forest Service and the Department of the Interior jointly chartering the structure, including joint decision making for approval an interagency wildland fire information and technology strategy, a multi-year rolling investment plan, and, when appropriate, specific large investments. Operating within the parameters of the strategy and investment plan the wildland fire information and technology program would have the discretion and authority for investment implementation and management.

The management structure does not combine existing organizations, staff, or funding but provides a means to efficiently organize and direct those agency resources to accomplish the interagency strategy. Reporting structures are not changed; work structures are created.

The implementation of this structure necessarily revises some of the roles and functions of the National Wildfire Coordinating Group as well as each of the agency wildland fire organizations in order to create a common approach to managing wildland fire information and technology investments.

Investments

The Investment section lays out a multi-year, multi-faceted approach to building information and technology program capacity and capability, for developing a long-term transition plan from the current "As Is" environment to the future "To Be" environment, and for managing the current set of investments in the meantime.

The plan provides a systematic and strategic method for establishing priorities, sequencing actions, and building on successes to achieve the goals set forth in the Strategy.

The process of planning and executing investments on a multi-year basis benefits the wildland fire business community, the wildland fire information and technology governance entities, and the agencies as a whole in allocating necessary resources, adjudicating priorities, and providing stability and certainty to the investment process.

The investment plan for wildland fire and information technology consists of three major components:

- Development of a Rolling Five-year Plan (FY 2012 – FY 2014)
- Design of the Future ("To Be") Environment (FY 2012 –FY 2013)
- Interim Action Plan (FY 2012 – FY 2014)

The design and documentation of the "To Be" environment will build on and complete work started in the development of the National Wildland Fire Enterprise Architecture and the associated Blueprint.

Fundamental to long-term effective investments in information and technology in support of wildland fire are (1) use of a rolling five-year investment plan and (2) application of the concepts and principles of life-cycle management and decision making.

The investment plan further identifies a series of activities necessary to build the foundation necessary to assess the efficacy of current systems and applications and to evaluate new investment proposals in the future. These activities focus on the completion of standardized business and technical architectures and the development of data standards. Much of this work has been started, but has not been completed.

In the short run there are a number of business areas such as weather and dispatch that have begun to informally develop business cases to address long standing information and technology issues. The investment plan proposes to "jump start" those activities by chartering development of formal business case proposals for consideration in the next planning/investment cycle.

Implementation

The Implementation section sets forth recommendations for implementing the wildland fire information and technology strategy, governance and management structure, and investment plan. Implementation of the wildland fire information and technology program in these four areas builds on a number interagency structures and operating principles, but also represents a significant departure from current business processes and norms. Further, implementation must take place in the context of overall agency governance, and especially in the context of evolving governance and management of information management activities.

The Implementation Plan is organized around four phases, beginning in FY 2012 and continuing into FY 2014, that are based on logical dependencies as well as on the capacity of the various affected organizations and stakeholders to absorb and manage changes to business processes, roles and responsibilities, and program goals and outcomes.

- Phase 1: Agency decision and acceptance - Immediate
- Phase 2: Initial operating capability – by the end of FY 2012
- Phase 3: Completing the details – by the end of FY 2013
- Phase 4: Steady state and continuous learning – beginning in FY 2014

Implementation will require dedicated, concentrated, and ongoing engagement by senior management, by various stakeholder organizations, and by a project management organization with responsibility for guiding implementation.

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1 - VISION AND STRATEGY

INTRODUCTION

The Wildland Fire Information and Technology Vision and Strategy (Strategy) describes a new paradigm for use of information and technology in support of the business mission of the interagency wildland fire program. Fundamental to this vision is providing information and technology services and functions independent of agency or location of user in a manner that provides flexibility and adaptability.

The Strategy for wildland fire information and technology is built upon the concepts and practices of service oriented architecture that focuses on components that can be used and reused in various combinations to provide services to multiple business functions in a more effective and efficient manner. These components are supported and enabled by an integrated data environment in which accurate and consistent data are shared and readily available when appropriate to any application or user. The effective use of data and applications depends on a technology infrastructure that enables interconnection among and between disparate networks as well as providing users with the means to easily collect, analyze, share, and display data and information.

Traditionally applications, data bases, and services have been stove-piped around functional areas within wildland fire, often using "vertically integrated" approaches in which data, applications, and delivery are re-created for each function rather than shared among functions and users. This traditional approach has created duplication of effort, inconsistent and unreliable data, and difficulty in communication across agency and functional lines. Further, an increasingly mobile and dispersed workforce requires tools and capabilities to function regardless of location or agency.

This Strategy for information and technology in support of wildland fire contains several key concepts:

- Mission requirements drive integrated, modular based applications and tools
- Authoritative data are readily available for all uses and users
- Interconnection and accessibility regardless of organization affiliation or user location
- Technology, research, and innovation enable and enhance mission accomplishment

Building on the Past, Looking to the Future

This Strategy builds on and enhances earlier work within the interagency wildland fire community, most notably the proposed 2008 *National Wildland Fire Blueprint*. However, a critical distinction is that while the proposed Blueprint included the *business* of fire, this Strategy focuses solely on how information and technology capabilities and services can *support and enable* the business of fire. Determination of business requirements and priorities is the province and responsibility of a number of different agency and interagency wildland fire governance structures and organizations.

This Strategy explicitly addresses technology as distinct from information management in order to emphasize the importance that technology plays in supporting and enabling the business of wildland fire. For example, unmanned aerial systems provide a technology to collect data, but are outside of the scope of traditional *information* technology management. In order to capture and

leverage technology opportunities to support and enable wildland fire business throughout the Strategy the term information *and* technology (I&T) is used in contrast to simply information technology.

Benefits, Opportunities, and Challenges

Adoption and implementation of this Strategy provides the wildland fire community with a number of benefits and opportunities, as well as challenges. Pursuing the Strategy will:

- Provide the data, tools, and technologies needed to improve and strengthen the ability to make sound and timely strategic and tactical wildland fire management decisions
- Increase the effectiveness and efficiency of the wildland fire program through re-engineering of processes and activities
- Minimize the costs of information and technology activities by use and re-use of assets and services
- Encourage and leverage innovation

At the same time, several challenges will need to be addressed:

- Maintaining program linkages and coordination with other agency business activities and information and technology activities to ensure data are exchangeable and that redundancies are minimized
- Recognizing and honoring agency priorities and mission requirements while functioning in an interagency enterprise manner
- Changing the culture from function-based applications and systems to one of components and modules using common, standardized data

A Wildland Fire Information and Technology Program

The successful accomplishment of the Strategy depends upon the capability and capacity of a program infrastructure. This document outlines the basic components of such a program, along with goals and objectives, success factors, risks, and performance measures. Key elements of a program to implement the Strategy include:

- Information and Technology Policies
- Governance and Management Structures
- Multi-Year Planning
- Partnerships and Collaboration
- Life-cycle Management

The Business of Wildland Fire

The Strategy supports and enables the business mission of wildland fire. That business is articulated in a number of policy documents. Statutory responsibility for natural resource and land management, including fire protection, is found in the various authorizing statutes for the five federal land managing agencies in the Department of Agriculture and the Department of the Interior.

Program policy, philosophy, strategy, and direction for execution of those responsibilities with respect to wildland fire management is expressed in the *Federal Wildland Fire Management Policy and Program Review*, approved by the Secretaries of Agriculture and the Interior in December 1995. The *Review and Update of the 1995 Federal Wildland Fire Management Policy*, January 2001,

reiterated and expanded upon the 1995 policy, laying out seventeen policy statements and nine guiding principles. The Departments of Agriculture and the Interior were joined in issuing the 2001 policy statements and principles by partners from the Federal Emergency Management Agency, the Environmental Protection Agency, the Department of Defense, the Department of Energy, the Department of Commerce, and the National Association of State Foresters. The 1995 and 2001 documents are principally federal documents, signed by the two Secretaries, and lay out a foundation for a risk-based program that recognizes the importance of wildland fire as a land and natural resource management tool, as well as the criticality of public and firefighter safety.

In response to requirements of the Federal Land Assistance, Management, and Enhancement (FLAME) Act of 2009, in 2010 the Secretaries of the Department of Agriculture and the Department of the Interior transmitted to the Congress *A National Cohesive Wildland Fire Management Strategy.* This strategy, endorsed by the intergovernmental Wildland Fire Leadership Council and building on the policy foundation of the 1995/2001 fire policies, establishes a wildland fire management vision for the next century: *safely and effectively extinguish fire, when needed; use fire were allowable; manage our natural resources; and as a Nation, live with wildland fire.* The Cohesive Strategy identifies three primary factors presenting the greatest challenges and opportunities for achieving the vision. These factors form the basis for the primary wildland fire business outcomes or goals:

- Restoration and maintenance of fire resilient landscapes
- Creation of fire-adapted communities
- Efficient and effective response operations

The Wildland Fire Information and Technology Strategy

Supporting the three principal policy goals of wildland fire requires an organized, integrated, systematic, and responsive information and technology strategy, with robust capabilities that provide (1) accurate, reliable, accessible data and information; (2) tools and applications that evaluate, manipulate, and analyze the data; and (3) technologies and infrastructure to gather, organize, access, share, disseminate, and display data and derived analyses and products. This strategy must be designed for an increasingly digitally based, mobile, virtual, and fast paced environment.

Wildland Fire Information and Technology Target Environments

Business Environment

The target business environment is characterized by the requirement to make sound, well-informed, risk-based, and timely decisions in three inter-related arenas: program policy and budget, planning, and operations. Decisions in these areas take place throughout all levels of the fire management organization.

The ***program policy and budget decision making arena*** includes broad national and individual agency/regional/local policy and budget determinations and the various directives, standards, guidelines, and operational procedures at levels that define and determine how the wildland fire program will operate and function.

The ***planning decision making arena*** covers all aspects of strategic, tactical, and operational plans ranging from national strategies to plans in functional areas such as fuels management and to action plans on incidents.

The ***operations decision making arena*** covers operational decisions in all areas including incident response, post-incident recovery, and fuels management.

The ability to make sound, well-informed, risk-based, and timely decisions in each of these arenas requires decision support tools that are used by a wide variety of functional areas within wildland fire. These functions in turn depend on data, applications, technologies, and policies to guide and inform decision makers both within the wildland fire business community and external to that community.

A notional depiction of this environment is shown in Figure 1.

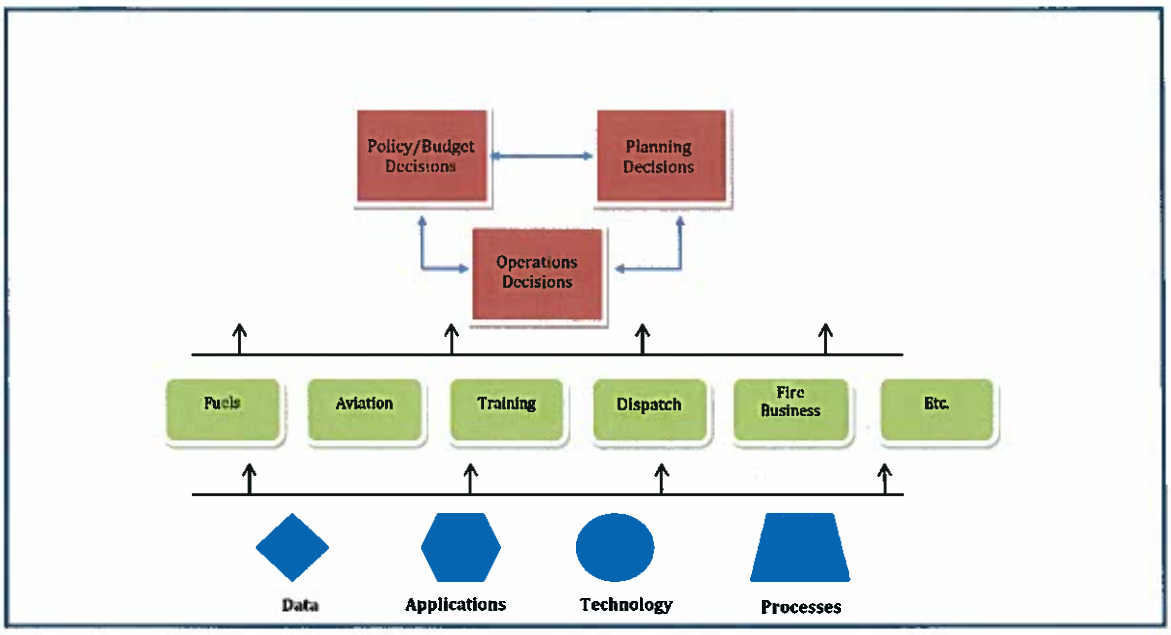

Figure 1 - Depiction of Business Environment

The business environment requires information and technology capabilities that are built on principles of collaboration for the efficient exchange of information that is responsive to business requirements and priorities, and contains the flexibility to easily respond to regional and local variability, to changing requirements as needs dictate, and to support a mobile workforce that is often agency and location neutral.

Data Environment

The target data environment provides accurate, consistent, reliable, and timely access to data in support of all applications, functions, and decision arenas. Data are collected and organized to ensure availability in applications or functions in a neutral manner. The number of separately supported databases will decrease through more efficient design and sharing of data among systems and applications. Errors and inaccuracies are reduced through single entry of data. The target data environment includes data standards, authoritative data sources, and systems of record to ensure planning and response is based on the best available information. Collaboration and coordination with both internal and external business areas will be necessary.

Applications Environment

The target applications environment leverages the principles and concepts of service oriented architecture and uses components to build suites of interoperable tools or "system of systems" rather than focusing monolithic, stove-piped applications. In this environment, use of web based systems, support for mobile technologies and uses, and support for cross platform integration are preferred. The target application environment minimizes the number of unique systems or applications in favor of a framework of modules that allow flexibility and agility in meeting dynamic wildland fire mission requirements.

Infrastructure and Technology Environment

The target infrastructure and technology environment provides secure, integrated, and accessible capabilities for all users and applications to be able to collect, analyze, share, and disseminate information regardless of function, agency, or location. The target environment includes both data and voice infrastructure. Interconnection among agency systems and infrastructure is an essential component of the target environment, either through commonly interpreted and applied policies or through engineered solutions.

Security Environment

The target security environment ensures an integrated approach to protecting the integrity of data and systems through a combination of application design, data standards, infrastructure design, and management of credentials and access. The target security environment must explicitly weigh and manage the risks of security measures with the ability of business functions to operate effectively. The ideal security environment is an integrated approach of automating security requirements that were once accomplished through a manual process. Security will continue to focus efforts towards confidentiality, integrity and availability through a balanced security in depth approach that meets all Federal requirements.

Governance and Management Environment

The target governance and management environment provides the structure, well defined roles and responsibilities, and repeatable procedures to ensure that information and technology needs are anticipated and the investments are well managed. Decision making is coordinated and optimized with responsibilities clearly defined and articulated. Proper governance ensures required resources and skills are identified and provided. A well defined life-cycle management process to guide investments from concept to development to operation and maintenance and finally to decommissioning. The target governance will ensure that current investments are regularly reviewed and assessed for business relevancy, potential duplication, and effectiveness of service and options are analyzed. Procedures are in place and used to measure information and technology investments against business requirements, priorities, and strategies. The target governance and management environment for information and technology supports and collaborates with the broader wildland fire business governance and management structures to consider options for innovative solutions that meet business needs.

National Wildland Fire Enterprise Architecture and Modernization Blueprint

In May 2004 the Wildland Fire Leadership Council chartered the development of a wildland fire enterprise architecture to provide a means for increasing IT efficiency and eliminating redundant IT investments. In 2008, a "Modernization Blueprint" was developed for the NWCG and in July 2008 the Fire Executive Council approved the Modernization Blueprint and forwarded it to the Chief Architects of the Department of the Interior and the USDA Forest Service for their review and approval. In September 2010 the Department of the Interior Investment Review Board (IRB)

approved the National Wildland Fire Enterprise Architecture (NWFEA) Modernization Blueprint conditional on completion of a target architecture, establishing joint governance procedures for decision making, and creating a management oversight structure. This document has yet to be formally approved by the USDA Forest Service.

While never adopted as agency policy, the NWFEA and the Blueprint contain substantial information and analysis that can be updated, revised, and brought forward into the development of the target environments.

Wildland Fire Information and Technology Program Overview

The wildland fire information and technology program exists to support and enable the goals, requirements, and priorities of the interagency wildland fire program. The program operates within the scope of overall agency information and technology programs and policies, but provides specific capabilities to support interagency wildland fire business.

In addition to enhancing and supporting the overall wildland fire program mission and goals, the information and technology program strives for operational excellence and to provide high quality program and project management through adherence to policies and standards, supporting business continuity, and cost-effectiveness through transparency and accountability. Cost effective investments in information and technology provide overall positive returns on investment for the wildland fire program as a whole, including minimizing overall program cost, reducing the risks to firefighters, and improving the quality of natural resource and land management.

Successful information and technology to support the program mission and goals includes efficient and effective support services such as training and user/help desk support through integrated, enterprise approaches.

Components

The wildland fire information and technology program is built around six components:

Information and Technology Policy

An interagency information and technology policy guides investment decisions and management of the investments to ensure that business priorities and requirements are met. This policy is based on a common understanding of the vision, mission, guiding principles, goals, and objectives for the program.

Business-driven and Innovative Approaches

The program will have mechanisms to continually solicit requirements and priorities from the wildland fire business community, provide two-way exchange with the science/research/technology communities and provide a coordinated effective method to respond to innovative solutions from these communities.

Governance

A common governance structure for the program will work in concert with other wildland fire and agency governance structures to provide leadership and direction, oversight and accountability, and effective management of the wildland fire investment portfolio.

Multi-Year Planning

A rolling five-year plan for investments provides predictability and direction, while allowing for modifications and adjustments as milestones are accomplished, priorities change, or new opportunities arise.

Partnerships and Collaboration

In developing and implementing the rolling five-year plan the federal wildland fire community depends on partnerships and collaboration with non-federal interests and agencies, with other federal partners, with other programs within the federal agencies, and with the chief information officers of the agencies.

Life-cycle Management

The program will employ systematic lifecycle management for all investments, ensuring that investment decisions support business priorities, that investments are well managed, that management processes are consistent, and that all investments are reviewed and evaluated on a regular basis.

Scope

The interagency wildland fire information and technology program is trusted with the development, support, and management of the data, applications, infrastructure, and policies/procedures necessary to support the business of wildland fire. The wildland fire information and technology program exists within the context of agency information management organizations that establish policies and standards and that provide infrastructure and enterprises services such as desktops. Thus, the wildland fire information and technology program aligns with agency information technology organizations in common areas, including desktop services, networks, infrastructure, security, and other aspects of information technology.

The wildland fire program also utilizes agency support services and applications such as finance, human resources, acquisition, and property management as well as other "mission" applications in natural resources and land management. Although the development and management of these services and applications are outside of the direct control of the wildland fire program, ensuring that the business needs and requirements of wildland fire are addressed by those services and applications is an important part of the wildland fire information and technology program.

The wildland fire information and technology program is organized around the applications and services provided by the USDA Forest Service and the Department of the Interior as the principal funding and management agencies. In addition the wildland fire program includes other partners inside and outside of the federal government that contribute as well. The requirements and resources of non-federal (state, local, tribal) entities and other federal agencies are important considerations in developing and managing applications and services.

Increasingly the wildland fire community interacts with other emergency response functions in planning for and responding to natural and human-caused incidents through the exchange of data and sharing of tools and applications. The continued development of wildland fire information and technology capabilities must include coordination and collaboration with these non-fire "all hazard" entities.

The content of web sites, use of social media tools, and the like for internal and external program communications is outside the direct scope of the wildland fire information and technology program. However, websites and other tools used to assist users with wildland fire applications will be managed as part of the information and technology program.

Wildland Fire Information and Technology Program Elements

The Wildland Fire Information and Technology Vision

We will fundamentally improve the way we conduct information and technology business, not just refine existing silos. Wildland fire information and technology supports the business of wildland fire with data, applications, and technologies that are independent of agency or location.

The Mission of Wildland Fire Information and Technology

Provide information and technology services in a timely, consistent, reliable, integrated, innovative, and cohesive manner to meet the business requirements and priorities of the wildland fire community.

Guiding Principles for the Information and Technology Program

These guiding principles set the foundation for the operation of the wildland fire information and technology program. These principles shape information and technology program activities and ensure delivery of solutions and services that are appropriate and suitable for wildland fire needs.

- Wildland fire business requirements and priorities, regardless of agency, shape and drive information and technology solutions and services
- Shared, interagency governance leads, manages, and oversees delivery of information and technology services and provides accountability to the wildland fire business community
- Information and technology investments are managed using lifecycle management tools, including regular review and evaluation of all investments
- Innovation, flexibility, adaptation, and collaboration are encouraged
- Solutions and services are interoperable and interconnected
- Solutions and services improve effectiveness (to meet business requirements) and efficiency (to provide in the most cost effective manner)
- Solutions and services reduce complexity to users
- Supporting capabilities such as training and user support are integral to development and delivery of all solutions and services

Wildland Fire Information and Technology Program Goals

These broad, long-term goals define how the information and technology program will accomplish the mission of providing information and technology services, in a timely, consistent, reliable, integrated, and cohesive manner, to meet the business requirements and priorities of the wildland fire community. These goals outline "*how* the information and technology program will accomplish the mission…." They are not goals for specific applications or investments. Those will be addressed through a "transition" plan from the current ("As Is") environment to a future ("To Be") environment, as discussed below.

Goal 1: Systems and Applications – Integrated solutions and services that enable informed, timely, and documented business decisions.

> At present wildland fire applications and systems tend to be stove-piped around particular functions and activities within the wildland fire program. Applications have been built to answer a specific business need without recognizing the potential of the application to address broader business goals. Under this goal the approach will be to focus on interoperable modular components that can be used in various combinations to perform the desired functions. The organization and use of the modular components

will focus on improving the ability of the business elements of wildland fire to make better decisions.

Goal 2: Data and Information – Accurate, consistent, reliable, and accessible data and information across landscapes, organizations, applications, programs, and platforms.

At present data that support wildland fire applications and systems are often entered at different times in multiple systems resulting in inconsistency and duplication of effort to enter and re-enter those data. Many applications have developed unique data sets and procedures to address the lack of data standards. Lack of standardized definitions inhibits exchange and re-use of data. Under this goal, standards for data will be developed and used which, along with shared access, will allow for more efficient, reliable, and cost-effective use of data to support applications and decision making.

Goal 3: Infrastructure and Connectivity - A secure, integrated environment that enables efficient, effective voice and data interconnection and accessibility regardless of organization affiliation or user location.

The interagency wildland fire community relies on the ability of its constituent organizations and personnel to work in a shared environment of duties and facilities. The ability to operate effectively is significantly inhibited by the inability to share access to information and technology infrastructure, requiring many users to use more than one computer or do without access to services. The causes (and therefore solutions) to this are largely a function of differing agency policies or interpretations of policy rather than incompatible technologies. Initial accomplishment of this goal would take place through common interpretation and implementation of policy. Over time the goal would be realized through design and deployment of infrastructure that has interconnectivity as a design feature.

Goal 4: Technology and Innovation – Technology, research, and innovation enable and enhance wildland fire business.

The ability to provide efficient and cost-effective information and technology services depends in large part on harnessing existing and new technologies to better acquire, analyze, and display data in support of program decision making. At present there is no effective set of mechanisms to identify technology needs and to take advantage of innovation in the research community and throughout the wildland fire business community. Accomplishment of this goal would provide means for the business community to identify requirements, for innovators to have a well understood method to present their ideas, and for decision making that ensures that investments in new technologies advance and enhance business. Those means and methods must allow agility and flexibility and balance encouragement of innovation with assurance that technology is the means, not the end.

These goals are to be accomplished in an integrated manner. No one goal is entirely independent of the other. Further, wildland fire business functions and information and technology requirements cut across multiple goals. For example, the function of dispatch requires a combination of good data, applications and tools to manipulate the data, technology to display and disseminate the data, and interconnection capability to easily access and use the data regardless of organization.

Similarly, security is inherent in access to applications and data and to the design and configuration of infrastructure/technology.

Objectives to Accomplish the Goals

In order to accomplish goals, specific, quantifiable, realistic targets must be identified and completed. The accomplishment of the goals will result in a robust information and technology program capable of managing ongoing investments in support of the business requirements of wildland fire.

Goal 1 - Developing integrated solutions and services that enable informed, timely, documented business decisions requires:

- Updating the As Is Business Model
- Developing a Target (To Be) Business Architecture
- Refreshing Business Model Requirements (data, applications, resources)
- Completing Target (To Be) Applications Architecture & Standards
- Implementing Target (To Be) Applications Architecture & Standards
- Developing a Migration Plan from the As Is Environment to the Target (To Be) Environment
- Implementing the Migration Plan

Goal 2 - Developing accurate, consistent, reliable, and accessible data and information across landscapes, organizations, applications, programs, and platforms requires:

- Establishing Data Management Program Governance
- Implementing Data Management Program
- Completing Target (To Be) Data Architecture & Standards
- Implementing Target (To Be) Data Architecture & Standards
- Refreshing and Expanding Data Inventory (including metadata, repositories, and so on)
- Revision to the Logical Data Model
- Identification of Authoritative Data Sources
- Reviewing and Updating Data Stewardship Responsibilities
- Continuing Data Standards Development (for core and new elements)

Goal 3 - Establishing a secure, integrated environment that enables efficient, effective voice and data interconnection and accessibility regardless of organization affiliation or user location requires:

- Identification and Revision of Policies and Procedures that Inhibit Interconnection
- Refining Target (To Be) Infrastructure/Technical Architecture and Standards
- Developing Target (To Be) Security Architecture and Standards
- Implementing Target (To Be) Infrastructure/Technology/Security Architecture and Standards
- Refreshing Infrastructure Inventory (for both voice and data)

Goal 4 - Promoting technology, research, and innovation to enable and enhance wildland fire business requires:

- Developing a Plan to Invest in Innovation and Exploration of New Technologies
- Developing a Process to Identify & Communicate Research Needs
- Developing an Efficient, Simple Process to Test, Submit, Evaluate and Approve New Technology

Information and Technology Program Implementation

The successful implementation of the wildland fire information and technology program depends upon a number of factors as well as the recognition and mitigation of a number of risks.

Critical Success Factors

To be successful the wildland fire information and technology program must have:

- The support and commitment of agency leadership in fire management, agency management, and the chief information officers in both the Department of the Interior and the USDA Forest Service
- An interagency governance and management structure (with associated business processes) with the authority to carry out management decisions and to allocate and utilize resources (including funding, staffing, and expertise)
- Accepting and adhering to a decision making structure that encourages new ideas, but accepts only those that provide best value to meet business requirements
- A well articulated, understood, and accepted life-cycle and portfolio management program for all interagency wildland fire information and technology investments
- Access to sufficient resources (funding, staffing, expertise) to plan and execute the life-cycle management and portfolio management program
- A common understanding of the Target (To Be) end state (future environment) for wildland fire information and technology investments

Risk Factors

To be successful the wildland fire information and technology program must mitigate and address these risks:

- Inconsistent interpretation and application of information technology policies within and between the Department of the Interior and the USDA Forest Service
- Inconsistent or incompatible individual agency information technology systems and infrastructure upon which wildland fire applications depend
- Agency biases toward existing applications or other information and technology activities could inhibit the move to the "To Be" enterprise architecture
- Agency enterprise functions that wildland fire program use or rely on, such as acquisition, finance, human resources, and property management do not meet wildland fire mission requirements
- Limited flexibility to achieve short-term savings through application retirement
- Eliminating current investments to support future investments could result in reduced operational services and capabilities
- Expectations for improvements in information and technology effectiveness and cost-efficiency exceed the capacity of the program to deliver

Performance Measures and Outcomes

The ultimate measure of success for an integrated interagency approach to wildland fire information and technology management is the ability to support and enhance the accomplishment of the principal business goals of wildland fire. Those goals are advanced when information and technology capabilities are able to help business activities be accomplished more effectively, more expeditiously, and more cost-effectively.

The success of an integrated interagency approach to wildland fire information and technology management will be measured over time using these measures of performance and outcomes:

- Ability to meet business goals, requirements, and priorities
- Ability to be adaptable and flexible to changing needs and priorities
- Increased return on investment through a combination of reduced information and technology costs, reduced costs of program delivery, and better business outcomes
- Consistent and reliable data and information are shared and re-used, and are available when, where, and how they are needed by users
- Users and applications are able to easily and efficiently interoperate and interconnect
- Accountability and responsibility for life-cycle management of investments is established
- The wildland fire information and technology program is able to comply with agency information technology policies and standards
- Standardization of applications and infrastructure enable cost-effective capital investments, application development, maintenance and user support

Implementation of the Strategy

Strategies

The accomplishment of the wildland fire information and technology program goals and objectives discussed above, and the continued management of a portfolio of investments over time, are guided by these strategies:

- Establishment of effective program governance and management
- Alignment of agency policies to improve the ability of the interagency wildland fire community to operate effectively and efficiently
- Pursue interconnectivity and interoperability of existing infrastructure while designing future infrastructure
- Re-engineer business processes in advance of application development
- Evaluate and leverage existing efforts and solutions
- Encourage innovation and use adaptive management and learning to continuously improve
- Pursue enterprise-level solutions and approaches
- Re-allocate resources from low priority activities to high priority, high value enterprise activities
- Pursue economical and flexible options on an enterprise level for management and support of data, applications, systems, and infrastructure
- Leverage existing organizations, structures, and staffing while investing in skills necessary to provide effective program management and service delivery
- Recognize the importance of managing organizational cultural change

Implementation Measures

Successful implementation of the an information and technology Strategy requires a number of measures:

- Establishment and implementation of a governance and management structure that provides clear roles, responsibilities, and accountability along with appropriate resources
- Development of the information and technology requirements necessary to enable and support the three primary wildland fire business arenas and business goals

- Development of technical plans and documentation necessary to implement the information and technology program and to provide the foundation for future investments that align with and implement the strategic vision for wildland fire information and technology
- Development of a migration strategy and plan to accomplish the strategic vision for wildland fire information and technology
- Development and ongoing maintenance of a multi-year investment strategy and work plan and annual program of work
- Review of the current portfolio of investments and infrastructure to prioritize and align with the strategic vision for wildland fire information and technology
- Monitoring and measuring performance and outcomes

2- Governance and Management

Introduction

The approach to Governance and Management of the interagency wildland fire information and technology program creates an integrated and cohesive structure while maintaining the integrity of the reporting relationships of personnel within the USDA Forest Service and Department of the Interior wildland fire management programs. This structure provides a clear, single interface point between the wildland fire "line of business" and the investment decision-making structures of the two agencies. As such, this structure provides single, unified capability to identify requirements and priorities, to efficiently make investment decisions, and to manage all of those investments as a single portfolio.

In developing the governance body, structure, and associated capabilities and features we began with the findings and recommendations presented to the Federal Fire Policy Council in August 2011 (and accepted by that group), performed an informal review of governance literature and examples, and worked with an information technology governance consultant to develop a concept of operations. This concept was discussed with a variety of stakeholders including the team of subject matter experts developing a strategic "roadmap" for the wildland fire information and technology program, wildland fire directors, senior wildland fire managers, and representatives from the offices of the Chief Information Officers in the Forest Service and the Department of the Interior. Comments and suggestions from those reviewers have been built into the approach.

In addition, the proposed approach was tested against industry standards for roles and functions of information technology governance groups, including use of a tool known as RACI (Responsible, Accountable, Consulted, and Informed) to verify and validate appropriate roles and responsibilities.

Purpose and Scope

The purpose of the wildland fire information and technology governance structure is to provide a means for interagency leadership, direction, oversight, and implementation of the portfolio of information and technology investments (services and capabilities) that support the business processes and requirements of wildland fire.

Scope

The governance structure does not replace existing wildland fire business governance structures. Rather, it provides a mechanism for ensuring that business requirements identified by those structures are supported by efficient and cost effective information and technology capabilities (including applications, data, and infrastructure).

The wildland fire information and technology governance structure will operate within two larger contexts:

- Wildland fire business and policy governance, including the Wildland Fire Leadership Council, the Federal Fire Policy Council, and the National Wildfire Coordinating Group, which provides guidance and direction on business requirements and priorities; and

- Department of the Interior and Department of Agriculture/US Forest Service information technology management governance, which provide overall agency policy, direction, and oversight for information technology.

In addition, the governance structure will be cognizant of, and respectful of, non-federal and other program interests and priorities that are affected by, and affect, the information.

Concepts of Wildland Fire Governance

Goals

The wildland fire information and technology governance structure will address two principal goals:

- Effective leadership and management of the wildland fire information and technology program in support of wildland fire business requirements and priorities
- Continuous improvement in the quality and efficiency of wildland fire information and technology services and capabilities

Guiding Principles

The wildland fire information and technology governance structure is guided by the following principles:

- Structure and operations are responsive and streamlined
- Form follows function; structures and processes evolve
- Stakeholders are participants
- Roles and responsibilities are clearly defined and transparent
- Decisions are made at the lowest appropriate level
- Issues are escalated by exception and need

Components of Governance

The wildland fire information and technology governance structure consists of five components:

- Organizational structure
- Decision and workflow
- Roles and responsibilities
- Information
- Authority and accountability

Reporting Structure vs. Work Structure

Wildland fire information and technology governance is based on dual structures. The *reporting* structure consists of the traditional bureau/agency organizations that comprise wildland fire. Employees *report* to a supervisor of record through an organizational structure within the Forest Service Fire and Aviation Management organization or one of the Interior fire management organizations.

The *work* structure for wildland fire information and technology governance organizes employees around common tasks and program activities necessary to accomplish the information and technology program, regardless of individual agency or bureau. All of the work is organized and

focused on the common, interagency information and technology program of work as determined by the interagency leadership.

This approach is similar to that currently used by the Forest Service and Interior bureau fire programs for managing work through the National Wildfire Coordinating Group and to the approach used by the Forest Service and the Bureau Land Management in managing in a "Service First" environment.

Organizational Structure

The proposed wildland fire information and technology governance structure is based on a set of collateral duty "boards" comprised of existing agency staff from the wildland fire programs of the Forest Service and the Department of the Interior, supported by permanent staff directly associated with the boards. The boards are responsible for coordinating, directing, and overseeing work conducted by existing wildland fire program staff, to ensure that the wildland fire information and technology portfolio is planned, developed, and implemented in an efficient manner to meet business requirements.

The high-level view of this structure is shown in Figure 2.

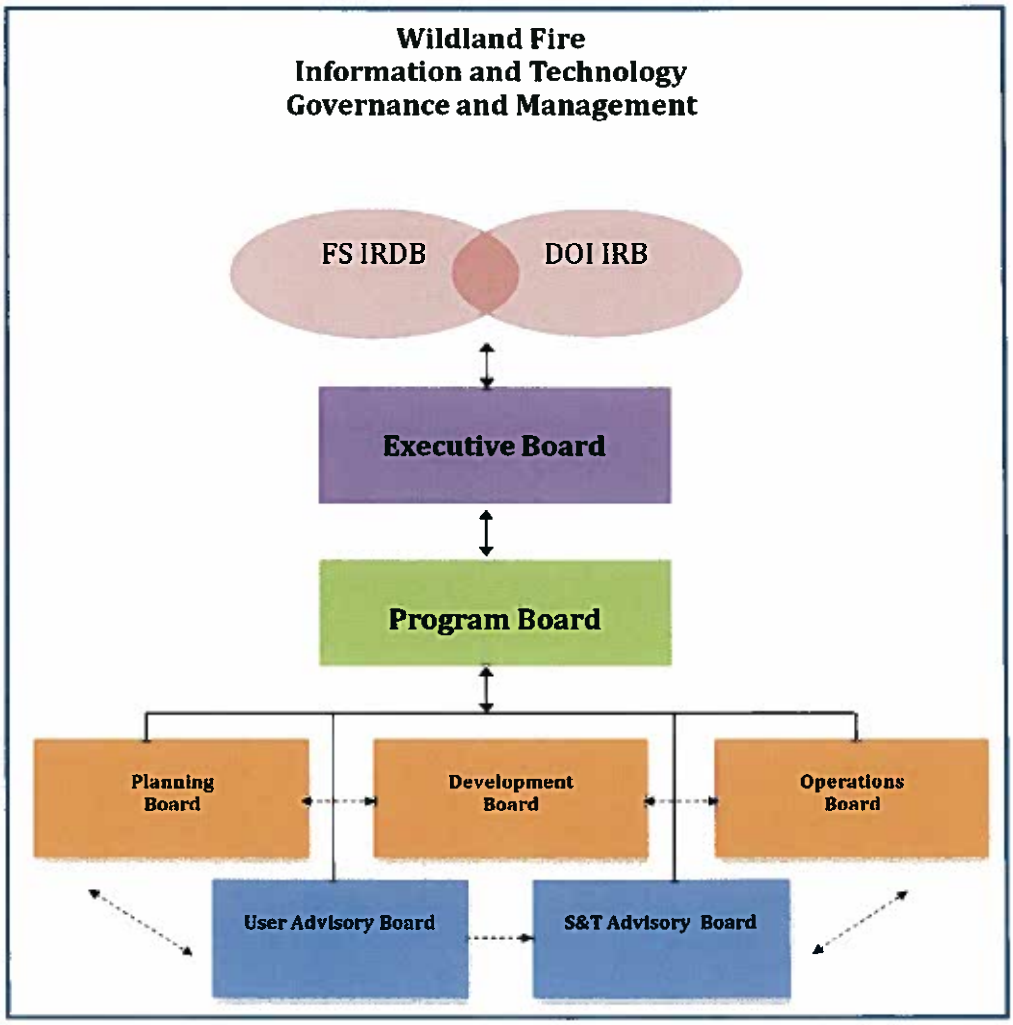

Figure 2 - I&T Governance and Management Structure

As described in detail below, each board has specific functions and responsibilities for successful management of the wildland fire information and technology program.

As shown at the top of Figure 2, the wildland fire information and technology governance ultimately reports the investment management structures of the Forest Service and the Department of the Interior. *Critical to the success of this structure is that for purposes of wildland fire investment decisions and oversight the two agencies make joint decisions on wildland fire information and technology investments.*

Procedures

Each board will be responsible for developing and implementing appropriate, standardized business processes and procedures. These processes and procedures will include workflow and decision making processes.

Authority

The overall governance structure will be established and empowered by a written agreement between the Department of the Interior and the Forest Service (or Department of Agriculture). Each board will have a specific charter that details functions, responsibilities, authorities, membership, and internal governance/operating procedures.

Common Investment Decision Making

The wildland fire information and technology governance structure provides a single mechanism for identifying and managing wildland fire information and technology investments. The final authority for making investment decisions, both strategic and discrete, lies with the management structures of the Department of the Interior and the Forest Service (and/or Department of Agriculture). To be successful in building and implementing an enterprise approach to these wildland fire investments the larger governance structures (including the two investment review boards) will need to develop procedures to jointly approve wildland fire information and technology investments.

Relationship to Agency Governance

The wildland fire information and technology governance and management structure supports and implements strategic business program direction on behalf of the wildland fire business and investment management governance structures. Entities such as the Wildland Fire Leadership Council and the Federal Fire Policy Council establish business goals and requirements. Investment review boards and related governance and management groups have final approval authority over strategic direction and individual investments.

Through formal and informal mechanisms each of the principal information and technology governance and management components will interface with business and investment management components in the agencies. A notional illustration of what those relationships will look like is shown in Figure 3.

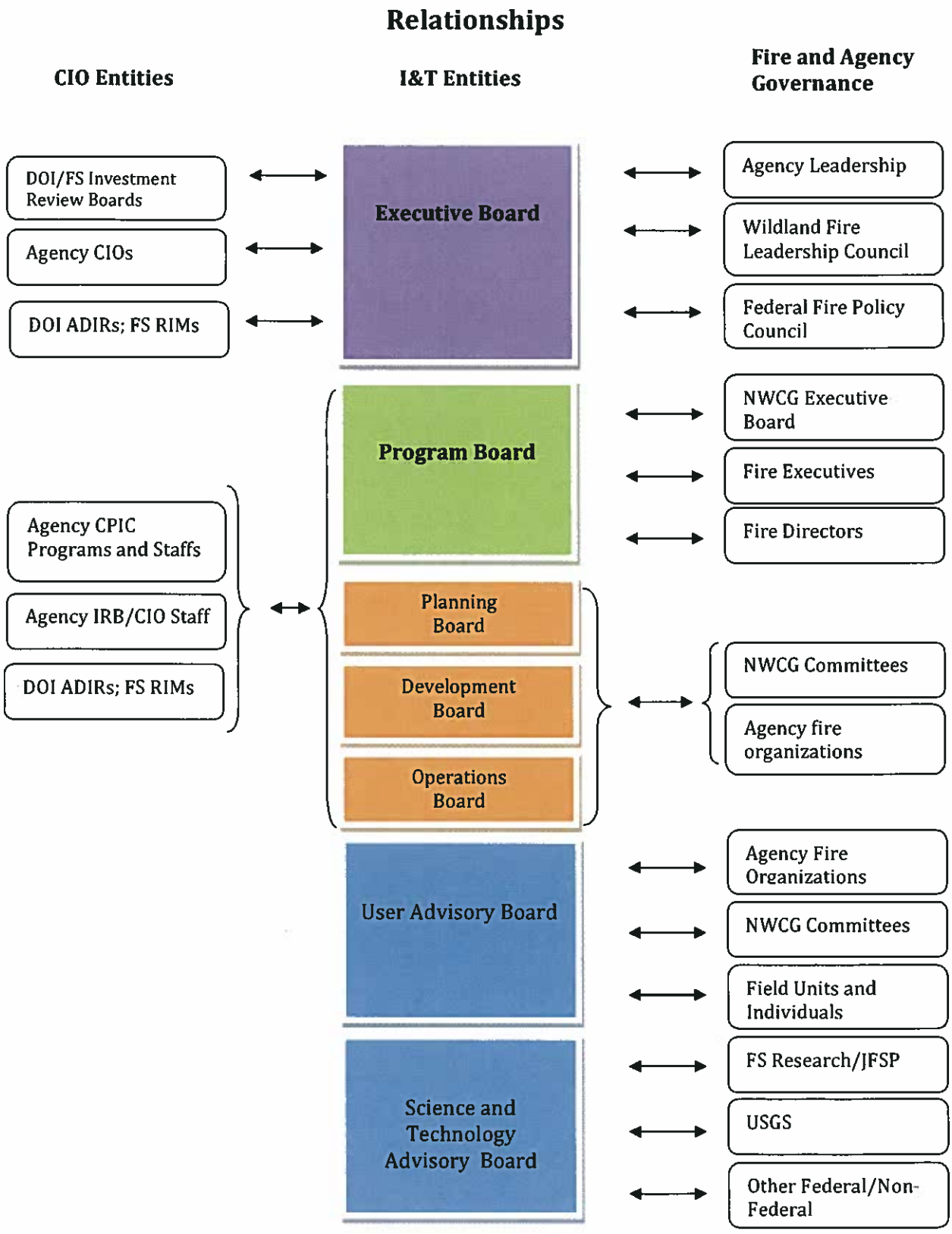

Figure 3 - Relationships

FUNCTIONS

The wildland fire information and technology governance and management structure address the primary and secondary functions shown in Figure 4.

Primary Function	Secondary Functions
Strategic Business Alignment, Policy, and Planning	Business requirements
	Business priorities
	I&T policy within the business area
	I&T strategy to align with business requirements and priorities
	Compliance with agency I&T policies and procedures
	Governance for I&T program
Line of Business/Segment Architecture and Standards	Business architecture
	Application architecture
	Data architecture
	Technology & infrastructure architecture
	Security architecture
	Strategic plan for architecture implementation
	Annual workplans for architecture implementation
	IT standards for business area
Line of Business/Segment Investment Planning and Management	Investment and portfolio prioritization
	Investment and project planning
	Investment and project management
	Investment portfolio management/oversight
Line of Business/Segment Operations Management	Methods and frameworks for delivery of services
	Planning and delivery of platforms
	Infrastructure management
	Acquisition of resources

Figure 4 - Information and Technology Functions

WILDLAND FIRE INFORMATION AND TECHNOLOGY GOVERNANCE ORGANIZATIONS

As shown in Figure 2, there are three tiers of wildland fire information and technology governance organizations, each of which has specific roles, responsibilities, and functions. Appendix 1 contains an analysis of the various organizations with respect to the primary and secondary functions shown in Figure 4, using a responsibility assignment matrix known as RACI (Responsible, Accountable, Consulted, Informed).

Each board will operate under a formal charter delineating roles, responsibilities, and authorities. The charters will allow delegation of responsibility and authority within defined terms.

Each Board is comprised of personnel drawn from existing Forest Service and Department of the Interior organizations, primarily in wildland fire programs, with support from professional staff.

Membership, and selection of members of each board, will be defined by its charter. Each board will contain at least one member of a "subsidiary" board to ensure effective communication and coordination between the boards.

Wildland Fire Interagency Investment Decisions

The Department of the Interior and Forest Service investment review boards will work together to make common, joint decisions approving the wildland fire information and technology strategy and vision, the five-year investment plan (and annual updates), and discrete investments that meet specified thresholds of size, dollar value, or complexity . These common, joint decisions will constitute final investment decision authority for the Department of the Interior and the USDA Forest Service. This approach ensures coordination of strategy and investment decisions between the mission business requirements of wildland fire and other programs in the two agencies as well as coordination with the chief information officers with respect to policy, infrastructure, and service delivery. With the annual approval of an overall investment strategy the executive board and the rest of the wildland fire information and technology management structure will have the authority and responsibility to implement the strategy and management of individual investments.

Scope and Function:

- Establish and approve wildland fire information and technology strategies, policies and priorities
- Approve specific investment proposals
- Monitor the performance, status, and health of the investment portfolio
- Approve architectures necessary to implement wildland fire information and technology capabilities

Interfaces

The two investment review boards, working together, ensure that wildland fire investments are integrated and coordinated with overall agency information technology strategies, policies, and investments, and to ensure coordination of investments with other mission business areas. The two investment review boards communicate common direction and expectations to the Wildland Fire Information and Technology Executive Board.

Wildland Fire Information and Technology Executive Board

The Executive Board is responsible for leading and overseeing the wildland fire information and technology program and suite of investments. The Executive Board provides information and recommendations to the Forest Service and Interior investment review boards and represents and advocates for the interests, requirements, and priorities of wildland fire information and technology. Within parameters established by the investment review boards, the Executive Board approves strategies, policies, and investments.

Scope and Function:

The Wildland Fire Information and Technology Executive Board ("Executive Board") has responsibility to:

- Recommend information and technology strategies, policies and priorities jointly to the Forest Service and Interior investment review boards
- Establish and oversee governance structures, policies, and procedures for wildland fire information and technology
- Establish and approve resource allocations to support information and technology investments and programs
- Recommend investment proposals for joint approval by the Forest Service and Interior investment review boards
- Approve investment proposals within parameters established by the joint decisions of the Forest Service and Interior investment review boards
- Monitor the performance, status, and health of the investment portfolio
- Recommend to the Forest Service and Interior investment review boards architectures necessary to implement wildland fire information and technology capabilities; approve architectures within parameters established by the Forest Service and Interior investment review boards
- Adjudicate and reconcile differences and competing priorities
- Champion wildland fire information and technology requirements, priorities, and investments

Membership

- Deputy Chief, State and Private Forestry, USDA Forest Service
- Deputy Assistant Secretary, Law Enforcement Security and Emergency Management, Department of the Interior
- Director, Fire and Aviation Management, USDA Forest Service
- Director, Office of Wildland Fire, Department of the Interior
- Deputy Director, Fire and Aviation, Planning and Budgeting, USDA Forest Service
- Chief Information Officer, USDA Forest Service
- Representative, Department of the Interior Assistant Directors for Information Resources
- Representative, Interior Fire Executive Council
- Representative, National Leadership Team, USDA Forest Service
- Representative, Deputies Operating Group, Department of the Interior
- Representative, Program Board

The Deputy Chief and the Deputy Assistant Secretary will serve as co-chairs and function as an Executive Committee with authority to make decisions on behalf of the Board as appropriate and necessary. The Executive Committee is responsible for calling meetings, setting agendas, and recording decisions.

Interfaces

The Executive Board coordinates and communicates with other governance groups within wildland fire to understand requirements and priorities, as well as with other program areas and agency governance structures. The Executive Board communicates direction and expectations to the Program Board.

Meetings

The Executive Board will meet from time to time as required to conduct business. Meetings take place in person or through alternate means such as teleconferencing, video conferencing or electronic mail.

Program Board

The Program Board will be chartered by the Executive Board to provide coordinated implementation of the wildland fire information and technology program.

Scope and Function:

The Program Board has responsibility to:

- Manage the information and technology strategies, policies and priorities established by the Executive Board;
- Manage the governance structures, policies, and procedures for wildland fire information and technology
- Recommend resource allocations to support information and technology investments and programs
- Recommend investment proposals to the Executive Board
- Monitor the performance, status, and health of the investment portfolio
- Recommend to the Executive Board architectures necessary to implement the wildland fire information and technology strategy
- Adjudicate and reconcile differences and competing priorities
- Champion wildland fire information and technology requirements, priorities, and investments with agency governance bodies

Membership

The membership of the Program Board will be comprised of wildland fire program personnel drawn from the various wildland fire organizations. This group should include personnel with both information technology skills and responsibilities and with program/mission understanding. The membership of the current National Wildland Fire Coordinating Group Information Technology Committee is logical for inclusion on the Program Board. The specific membership will be prescribed by the Program Board charter.

Interfaces

The Program Board is responsible for managing and coordinating the implementation of wildland fire information and technology investments. The Program Board provides recommendations to the Executive Board and ensures that the decisions of the Executive Board and agency management are implemented through leadership and coordination of the work of the five domain boards. The Program Board will coordinate and communicate with other governance groups within wildland fire to understand requirements and priorities and to ensure successful planning, development, and operation of wildland fire investments.

Meetings

The Program Board will meet from time to time as required to conduct business. Meetings take place in person or through alternate means such as teleconferencing, video conferencing or electronic mail.

Domain Boards

The Domain Boards will be chartered by the Program Board, with concurrence of the Executive Board, and are responsible for the day-to-day management and implementation of the wildland fire information and technology program. Three boards (Planning, Development, and Operations) have responsibility for program development and management as described below. Two boards (User and Science and Technology) provide advice and interface between the information and technology program and users and developers as described below. The Domain Boards are

Planning Board

The Planning Board is responsible for strategic and tactical planning for wildland fire information and technology investments, developing and maintaining support architectures, managing data, managing the investment process, and managing the investment portfolio. Within the Planning Board a data management program function will be responsible for data standards, designation of authoritative data sources, and related activities. The functions of architecture and data management currently housed in the National Wildland Fire Coordinating Group Program Management Unit and Information Technology Committee will be transferred to the Planning Board.

Scope and Function:

The Planning Board has responsibility to:

- Manage the wildland fire information and technology portfolio (status and health)
- Assess and solicit business requirements and priorities
- Evaluate investment proposals
- Prepare investment proposal decision materials and manage the investment approval process
- Recommend investment proposals to the Program Board
- Develop and maintain data standards and the data management program
- Develop and update the five-year investment plan
- Develop and maintain Target (To Be) architectures
- Maintain and update information and technology strategic planning
- Maintain the National Wildland Fire Enterprise Architecture

Membership

The membership of the Planning Board will be comprised of appropriate wildland fire program personnel drawn from the various wildland fire organizations. The specific membership will be prescribed by the Planning Board charter.

Interfaces

The Planning Board coordinates with the other domain boards, the Program Board, and external entities. The Planning Board will make recommendations to the Program Board on strategy, architectures, investments, and portfolio management.

Meetings

The Planning Board will meet from time to time as required to conduct business. Meetings take place in person or through alternate means such as teleconferencing, video conferencing or electronic mail.

Development Board

The Development Board is responsible for managing the accomplishment of investment projects, either as new investments or significant modifications to existing investments. The Development Board manages and oversees the work of individual projects to provide coordination, integration, and collaboration among and between projects. The Development Board will establish project teams and structures to organize like investments and realize economies through common project management and oversight activities. The Development Board ensures that project development meets requirements and expectations before recommending approval to make the investments operational.

Scope and Function:

The Development Board has responsibility to:

- Manage all investment development activity
- Ensure that all investment development activity meets project management requirements
- Ensure that development activity is consistent with and meets user and management requirements and expectations.

Membership

The membership of the Development Board will be comprised of appropriate wildland fire program personnel drawn from the various wildland fire organizations. The specific membership will be prescribed by the Development Board charter.

Interfaces

The Development Board coordinates with the other domain boards, the Program Board, and external entities. The Development Board will make recommendations to the Program Board on new investments and on completion of projects (before moving to operations/maintenance).

Meetings

The Development Board will meet from time to time as required to conduct business. Meetings take place in person or through alternate means such as teleconferencing, video conferencing or electronic mail.

Operations Board

The Operations Board is responsible for managing the steady state operations and maintenance of investments once development is complete and the results have been accepted. The Operations Board manages and oversees the work of steady state investments to provide coordination, integration, and collaboration among and between projects. The Operations Board will establish project teams and structures to organize like investments and realize economies through common management and oversight activities. The Operations Board will ensure that ongoing investments meet user requirements and expectations. The Operations Board will coordinate and interact on a routine basis with the chief information offices of the USDA Forest Service and the Department of the Interior to ensure consistent and efficient delivery of information technology services, ensure adherence with agency policies and procedures, and develop and implement common policies and procedures to enable efficient and effective interagency wildland fire program activities.

Scope and Function:

The Operations Board has responsibility for:

- Systems and platforms for delivery of services
- Infrastructure management
- Ongoing security management
- Ensuring that investment activity complies with all applicable policies and requirements
- Identifying infrastructure requirements necessary to support service delivery
- Ongoing coordination with agency information technology policy and service delivery functions
- Coordinating common information technology policies and procedures among agencies to enable efficient and effective interagency wildland fire program activities.

Membership
The membership of the Operations Board will be comprised of appropriate wildland fire program personnel drawn from the various wildland fire organizations. The specific membership will be prescribed by the Operations Board charter.

Interfaces
The Operations Board coordinates with the other domain boards, the Program Board, and external entities. The Operations Board will make recommendations to the Program Board on new investments and on enhancements or modifications to steady state investments necessary to improve service delivery or capability. The Operations Board will work in close coordination and cooperation with information technology service delivery organizations of the two departments on such issues as infrastructure and security.

Meetings
The Operations Board will meet from time to time as required to conduct business. Meetings take place in person or through alternate means such as teleconferencing, video conferencing or electronic mail.

User Advisory Board
The User Advisory Board is responsible for identifying wildland fire business information and technology requirements and priorities. The User Advisory Board will be the primary mechanism for other domain boards and the Program Board to understand and incorporate user requirements and priorities into long term strategies, investment proposals, adequacy of project development work, and efficacy of ongoing investment service delivery. The User Advisory Board will be advocates for innovative ideas and approaches from users and assist with development of investment proposals from those users.

Scope and Function:
The User Advisory Board has responsibility to:

- Maintain contact and serve as liaison with user communities and program areas throughout wildland fire
- Assist with development of strategies, architectures, and investment proposals
- Assist with evaluation and assessment of efficacy of the wildland fire information and technology program and individual projects and investments.

Membership
The specific membership will be prescribed by the User Advisory Board charter. Membership is expected to include representatives from National Wildfire Coordinating Group committees, program components within the wildland fire agencies, and field units of the various agencies.

Interfaces
The User Advisory Board coordinates with the other domain boards, the Program Board, and external entities. The User Advisory Board will make recommendations to the Program Board on requirements, priorities, strategies, new investments, and the efficacy of ongoing investment activities.

Meetings
The User Advisory Board will meet from time to time as required to conduct business. Meetings take place in person or through alternate means such as teleconferencing, video conferencing or electronic mail.

Science and Technology Advisory Board

The Science and Technology Advisory Board is responsible for supporting the wildland fire information and technology program through advice on new technologies and research results and for communicating requirements and priorities to the science and research communities. The Science and Technology Advisory Board will be an important mechanism for other domain boards and the Program Board to understand and incorporate opportunities for new technologies and to solicit assistance in meeting wildland fire user information and technology requirements. The Science and Technology Advisory Board will be advocates for innovative ideas and approaches from the science and technology communities.

Scope and Function:

The Science and Technology Advisory Board has the responsibility to:

- Maintain contact and serve as liaison with internal and external science and technology communities and program areas
- Assist with development of strategies, architectures, and investment proposals
- Assist with evaluation and assessment of efficacy of the wildland fire information and technology program and individual projects and investments.

Membership

The specific membership will be prescribed by the Science and Technology Advisory Board charter. Membership is expected to include representatives from Forest Service research organizations, the US Geological Survey, and other federal and non-federal science, research, and technology organizations.

Interfaces

The Science and Technology Advisory Board coordinates with the other domain boards, the Program Board, and external entities. The Science and Technology Advisory Board will make recommendations to the Program Board on requirements, priorities, strategies, new investments, and the efficacy of ongoing investment activities.

Meetings

The Science and Technology Advisory Board will meet from time to time as required to conduct business. Meetings take place in person or through alternate means such as teleconferencing, video conferencing or electronic mail.

STAFFING

As described above, the basic model for this governance and management structure is to use "boards" to manage the daily work of staff that is employed by each of the federal wildland fire organizations. In performing their coordination, leadership, and oversight functions each of the boards will require staff support in the form of administrative assistance (meeting scheduling, record keeping, etc.) and professional expertise (portfolio management, standards, architecture, etc.). When faced with similar requirements the NWCG established a Program Management Unit (PMU) staffed with personnel dedicated to support and management of NWCG program activities (with positions hosted by one member agencies). This PMU model is similar to that proposed here in that the staff positions are hosted by an agency but the work is organized and directed in support of the interagency program.

Implementation of this governance and management structure will require further analysis and discussion of requirements for staff support for the boards and how to best provide that support.

All staffing decisions will be made in the context of optimizing use of all staff resources to efficiently manage the information and technology portfolio.

LIFE-CYCLE MANAGEMENT PROCESS

The wildland fire information and technology program will be managed around the principles and concepts of life-cycle management, as illustrated in Figure 5.

Generic Life-Cycle Management Process

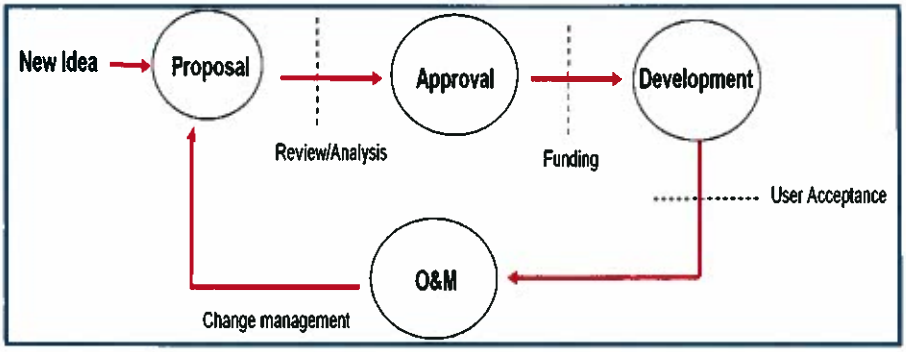

Figure 5 - Generic Life-cycle Management

The association of the life-cycle stages and activities within the context of the wildland fire information and technology management and governance structure is show in Figure 6. A graphical presentation of roles and responsibilities of the various entities is in Appendix 2.

Life-cycle Management Roles and Responsibilities

Life-Cycle Management Stage	Responsibilities	Outcomes
Idea Generation/ Proposals/Requirements (including enhancements and scope changes to existing investments)	• User Advisory Board • Science and Technology Advisory Board • NWCG Committees • Project and investment managers • Fire management leadership • Field users • Etc.	• User needs/ requirements • Proofs of concept • New approaches to old issues • Revisions or enhancements to existing investments
Proposal Preparation	• Planning Board establishes process and format for proposal submission • Proposers/proponents submit proposals • Planning Board and other domain boards assist with preparation	• Proposal with business objective, consistency with strategy, funding, project management requirements, etc. defined
Proposal Review and Analysis	• Planning Board coordinates review of proposal based on established criteria (business need, consistency with IT	• Recommendations to Program Board, Executive Board

Life-Cycle Management Stage	Responsibilities	Outcomes
	strategy, implications for non-fire programs, etc.) • Other domain boards participate in and assist with review	
Proposal Approval	• First stage approval by Program Board • Second stage approval by Executive Board • Third stage approval by agency IRBs • Threshold criteria may be established to allow final approval at stage one or stage two	• Approvals to proceed with development; may be subject to further approval through agency/Congressional budget process before development begins
Funding/Budget Approval	• Planning Board is lead for identifying funding requirements for investment proposals • Program and Executive Boards approve funding, subject to agency, OMB, Congressional approvals as appropriate	• Funding to implement investment decision
Project Development	• Development Board leads development process, overseeing project management activities • Other domain boards involved in oversight to ensure successful results • Program Board and Executive Board provide oversight as necessary	• Deliverable that meets project charter requirements
Project Acceptance	• Development Board proposes acceptance of project deliverables • Program Board and Executive Board accept deliverables • Other domain boards participate in acceptance recommendation	• Project is completed • Steady state operations and maintenance begins
Operations/Maintenance	• Operations Board is lead for steady state management of the investment • Ongoing coordination with other domain boards • Oversight and monitoring by Program Board and Executive Board	• Service delivery to users
Change Management	• Operations Board is lead for	• Change proposals that are

Life-Cycle Management Stage	Responsibilities	Outcomes
	proposing changes to steady state investments to meet new or changed requirements • Ongoing coordination with other domain boards • Threshold criteria may be established to allow some changes to be approved at domain board level	considered using the proposal review and analysis process
Investment and Service Portfolio Monitoring	• Planning Board monitors status and health of each investment and reports to Program Board and Executive Board • Operations Board monitors the portfolio of services for efficiency • Ongoing coordination with other domain boards	• Periodic reports to Program and Executive Boards • Periodic reports to agency IRBs
Investment Review/Retirement	• Planning Board leads reviews of investment to ensure alignment with requirements (business and technical) and provides recommendations to Program and Executive Boards • Ongoing coordination with other domain boards	• Scheduled in-depth reviews of each investment • Reports to Program and Executive Boards • Proposals to terminate or revise investments that are out of alignment

Figure 6 - Life-cycle Management Roles and Responsibilities

Standardized Investment Management

The wildland fire information and technology management structure will implement standardized project management and steady state investment management practices and procedures. These practices and procedures will include:

Separating Projects and Investments

The term "investments" will be used as a broad term for activities related to information and technology activities and services. Within individual investments there may be ongoing steady state activity, formal development of new versions, and proposals for future enhancements. Separating steady state management from development of future capabilities and the use of life-cycle management techniques ensures that new development is appropriately managed and results are accepted prior to deploying services to users. The term "projects" will be used for activities that have a specified end point, as in the development of a business case for a proposal or the development of a new capability. Projects are components of larger investments.

Common Project and Investment Management

Development projects and steady state operation of investments will be based on standardized charters that include measurable outcomes. Project and steady state management will be

grouped around common themes to provide efficient and integrated approaches to project oversight and direction, change management procedures, and adherence to project management standards and best practices. Change management boards, user advisory groups, oversight groups and the like will be consolidated and standardized to provide consistency and efficiency, with clearly defined roles, responsibilities and functions of those groups.

Common Infrastructure and Support

Through common management of steady state investments efficiencies can be realized in such areas as security management, help desk services, data storage and management, license agreements, and acquisition.

FUNDING

Under this governance and management approach to wildland fire information and technology the underlying funding sources for new projects, ongoing investments, and supporting staffs and infrastructures does not change. Each agency will continue to provide appropriate funding. One of the roles and functions of each of the boards is to determine necessary funding requirements and to allocate costs in a fair manner. The boards, particularly the Program Board and the Executive Board, will need to work in close coordination with the fire program management organizations of the two departments to identify funding requirements and build those into agency budget requests and annual work plans.

IMPLEMENTATION ISSUES

The implementation of this governance and management structure will require a number of activities over a period of several months. Key implementation activities and priorities include:

- Development and approval of an agreement between the Department of Agriculture/Forest Service and the Department of the Interior authorizing and chartering this interagency approach is fundamental and the first priority during implementation.
- Recognizing and incorporating the roles of non- Interior/Agriculture and non-fire entities (e.g. Department of Homeland Security, States, or all-hazards programs) in setting requirements and providing resources (funding, staffing, or other) in support of wildland fire investments.
- Defining and distinguishing the appropriate roles of the NWCG and the I&T program management structure. Some of the functions currently performed by the NWCG (eg architecture work in the PMU and the work of the Information Technology Committee) will migrate to the I&T management structure.
- Development of operating charters, memberships, and business rules to enable the various boards, within the framework and principles outlined here.
- Development of business processes for development of a five-year investment plan, life-cycle investment management, and investment decision-making. Significant work on many of these has been done by the Information Technology Committee and the NWCG PMU in the past and will provide a solid foundation.
- Providing staff support for the boards as discussed above.

3- Investment Plan

Introduction

This section lays out a multi-year, multi-faceted investment approach for building information and technology program capacity and capability, developing a long-term transition plan from the current "As Is" environment to the future "To Be" environment, and for managing the current set of investments in the meantime.

The Wildland Fire Information and Technology Investment Plan provides a systematic and strategic method for establishing priorities, sequencing actions, and building on successes to achieve the goals set forth in the Wildland Fire Information and Technology Strategy.

The process of planning and executing investments on a multi-year basis benefits the wildland fire business community, the wildland fire information and technology governance entities, and the agencies as a whole in allocating necessary resources, adjudicating priorities, and providing stability and certainty to the investment process.

The investment plan for wildland fire and information technology consists of three major components:

- Development of a Rolling Five-Year Plan (FY 2012 – FY 2014)
- Design of the Future ("To Be") Environment (FY 2012 –FY 2013)
- Interim Action Plan (FY 2012 – FY 2014)

Develop and Implement a Rolling Five-Year Plan (FY 2012 – FY 2013)

The core of the Wildland Fire Information and Technology Investment Plan is a rolling five-year investment plan that sets forth the status and activities associated with the entire wildland fire information and technology investment portfolio. As such, it will include the full range of life-cycle activities from concept development through evaluation of steady state investments.

The five-year plan will be updated annually in preparation for current and future budget planning and decisions. The level of detail in the plan will decrease in the latter years covered by the plan, with detail added for each investment in the earlier years.

The full five-year plan will take some time to be completed as the portfolio information for all investments is gathered and as the transition plan from the current "As Is" environment to the future "To Be" environment is completed. Once that transition plan is completed the five-year plan should represent the actions, sequencing, and pacing of investment activities necessary to implement the "To Be" environment.

Elements of the Five-year Plan

- Vision/Strategy – updates and revisions
- Improvements/Lessons learned
- Investment List
- Concept development; business case development – preparing for future investment proposals
- Proposed new starts (including revisions to existing investments)

- Development
- Steady State/O&M
- Scheduled for life-cycle review
- Program development
- Expectations and Outcomes
- Risk Analysis
- Budget/Resource
- By investment status
- Program management and infrastructure not tied to specific investments
- Requests for Approval
- New investments
- Discretion/license to implement

A notional outline of the contents of the eventual full five-year plan is shown in Figure 7.

Investment Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Program Management & Implementation					
Activity 1	X	X			
Activity 2		X	X		
Concept Design					
Activity 1	X				
Activity 2			X		
Development					
Activity 1	X				
Activity 2			X		
O&M/Steady State					
Activity 1				X	X
Activity 2			X	X	X
Evaluation & Review					
Activity 1				X	
Activity 2			X		
Infrastructure					
Activity 1		X	X		
Activity 2			X	X	X

Figure 7 - Notional Five-year Plan Outline

Development and completion of the full five-year plan, including incorporation of the transition plan for achieving the "To Be" environment is expected to take two or more years, through FY 2014.

Annual Planning Cycle

Development and ongoing management of the Five-year Plan will require creation of a planning process similar to that used in budget planning, development, and approval. This planning process provides all parties with a multi-year view of current and planned investments and future requirements and dependencies. The resultant plan will allow the Interagency Investment Review Board to establish expectations and provide direction for the wildland fire information and technology program to implement its provisions. An essential component of the plan will be explicit

commitment for discretion or "license" to operate within agreed upon parameters to make adjustments without returning to the Forest Service and Interior investment review boards for approval.

This planning cycle is characterized by these features:

- Begin with a "call" for proposals and requirements to be included in the Five-year Plan. These would include new starts or new aspects of investments in steady state operations and maintenance, requirements for continued steady state operations and maintenance of existing investments, and other non-investment specific activities such as data management or infrastructure management.
- The Planning Board assembles proposed update to Five-year Plan based on the results of the "call." The plan will include a number of components:
    - Updates and revisions to the long-term vision and strategy for all investments
    - All proposed investments and related activities as outlined in Figure 7
    - Proposed costs and allocation of costs among funding agencies
- The proposed plan update is reviewed by the Program Board, fire program leaders, and NWCG Executive Board, and other stakeholders for priorities and funding.
- The Executive Board reviews and approves the proposed plan update and forwards to the Interagency Investment Review Board for final approval.
- Once the plan is approved implementation is the responsibility of the Program Board with oversight by the Executive Board.

A schematic of this planning cycle is shown in Figure 8.

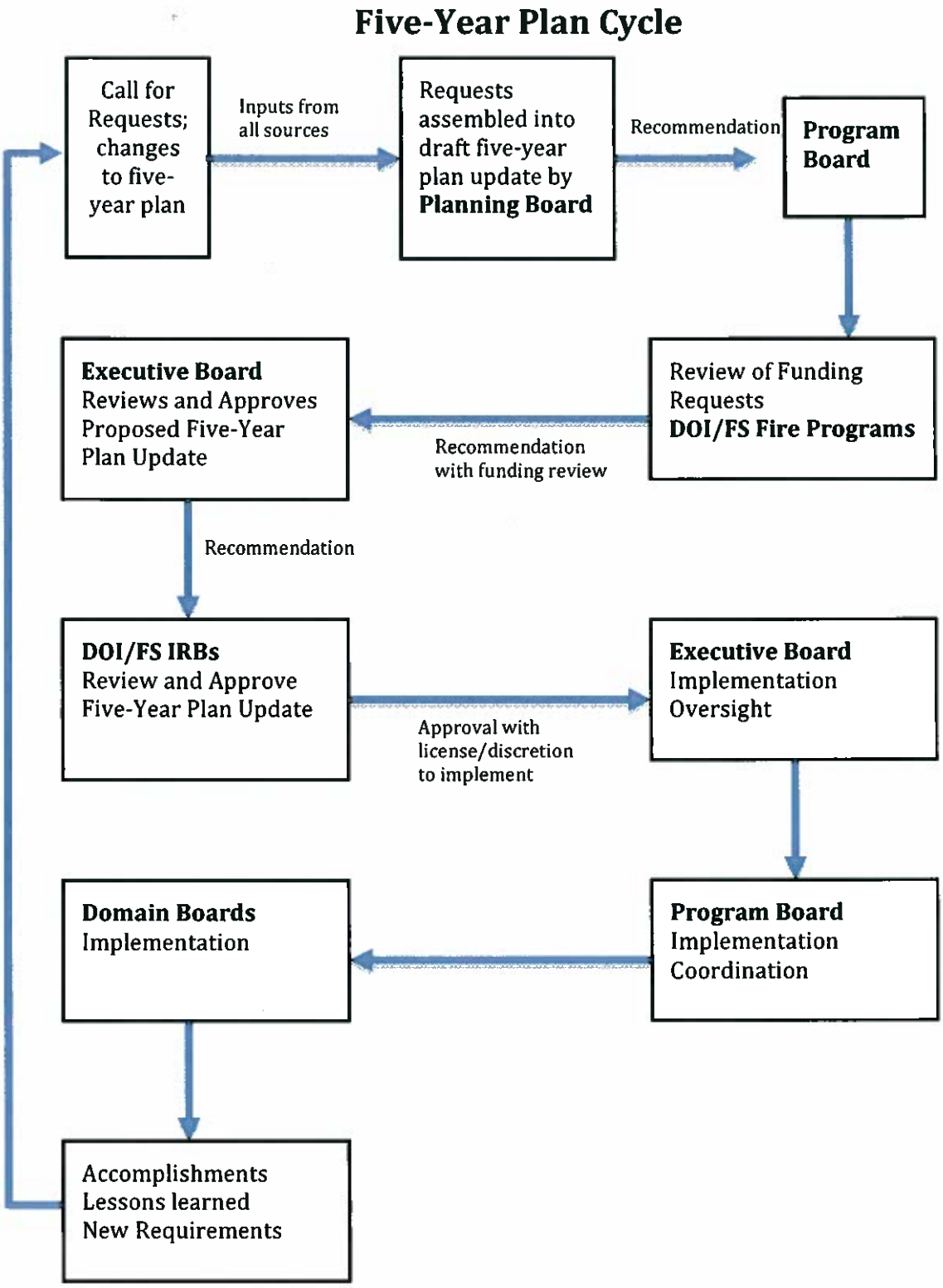

Figure 8 - Annual Five-year Plan Cycle

Future Business Design and Requirements (FY 2012 – FY 2013)

Under the Wildland Fire Information and Technology Strategy, the purpose of information and technology is to enable and support the accomplishment of the three primary business outcomes for wildland fire. In order to determine how to best enable and support those outcomes a thorough review and analysis of the business processes and models of wildland fire must be conducted, with appropriate changes made to those processes and models. That work is to be followed by development of the resultant information and technology requirements.

Interim Action Plan (FY 2012 – FY 2014)

Pending the completion of the "To Be" business environments and the development of a transition plan to guide the path of investment actions to achieve those environments a number of actions are required in these areas:

1. Information and Technology Program Management - building capability and capacity to manage an enterprise wildland fire information and technology program
2. Develop business requirements to inform potential future investments
3. Review infrastructure and operations of current investments

Program Implementation (FY 2012 – FY 2014)

The four goals and associated objectives for the information and technology program identified in the Wildland Fire Information Technology Strategy provide the foundation for an ongoing information and technology program.

Goal 1. Integrated solutions and services that enable informed, timely, documented business decisions.

- Update As-Is Business Model
- Develop Target (To Be) Business Architecture
- Refresh Business Model Requirements (e.g. data, apps, resources, etc)
- Complete Target (To Be) Applications Architecture & Standards
- Implement Target (To Be) Applications Architecture & Standards
- Develop Migration Plan
- Implement Migration Plan

Goal 2. Accurate, consistent, reliable and accessible data and information across landscapes, organizations, applications, programs and platforms.

- Establish Data Management Program Governance
- Implement Data Management Program
- Complete Target (To Be) Data Architecture & Standards
- Implement Target (To Be) Data Architecture & Standards
- Refresh and Expand Data Inventory (e.g. metadata, repository, etc)
- Revise Logical Data Model
- Identify Authoritative Data Sources
- Review & Update Data Stewardship
- Continue Data Standards Development (Core & New)

Goal 3. A secure, integrated environment that enables efficient, effective voice and data interconnectivity and accessibility regardless of organization affiliation or user location.

- Identify and Revise "Roadblock" Policies and Procedures

- Refine Target (To Be) Infrastructure/Technical Architecture & Standards
- Develop Target (To Be) Security Architecture & Standards
- Implement Target (To Be) Infrastructure/Technology/Security Architecture & Standards
- Refresh Infrastructure Inventory (voice and data)

Goal 4. Technologies, Research & Innovation Enable and Enhance Wildland Fire Business.

- Develop Plan to Invest in Innovation and Exploration of New Technologies
- Develop Process to Identify & Communicate Research Needs
- Develop an Efficient, Simple Process to Test, Submit, Evaluate & Approve New Technology

Accomplishment of the goals is achieved through several objective activities during the period 2012 through 2014, after which the program will be on stable, sound footing to manage ongoing investment activity in applications and technology.

Much of the work in Goals 1 and 2 will build on and complete work started in the development of the National Wildland Fire Enterprise Architecture and the associated Blueprint.

A detailed timeline for accomplishing the objectives for each goal appears in Appendix 3.

Develop Business Requirements to Inform Potential Future Investments (FY 2012)

A number of business areas within wildland fire have begun to identify requirements to improve information and technology support and capability through improved and consolidated applications and improved data. Informal efforts have been underway to identify user requirements and develop potential solutions. However, these efforts are not formally chartered, do not have clear outcomes specified, and may not have all appropriate stakeholders engaged. Four business areas in particular have pressing needs for improving information and technology support and capability. Conducting and documenting the requirements and potential solutions will enable the wildland fire community to make appropriate investment decisions as soon as possible.

- *Computer Aided Dispatch*

  Purpose: Improve computer aided dispatching services and capabilities to meet business requirements for all organizational levels, integrate data with other applications and functions, and coordinate with non-fire dispatching.

  Relationship to Information and Technology Goals:

  Goal 1 – integrated solutions and services
  Goal 2 – standardized data

  Status: Informal data gathering and needs analyses has been taking place in the dispatch business community. The pilot projects under the Interagency Dispatch Improvement Project are identifying CAD issues and requirements. The Forest Service Chief Information Officer has identified security issues with current applications and has created a team to examine them. The National Park Service is evaluating non-fire dispatching systems and capabilities, which may affect fire business operations. The Department of the Interior law enforcement IMARS system also has dispatching features.

  Action: Charter project team incorporates all stakeholders to develop user requirements and a business case proposal for a future investment decision.

- *Weather Data Consolidation*

  Purpose: Conduct an assessment of wildland fire weather requirements and options for meeting those requirements including opportunities for partnerships, sharing of data, and consolidation of applications.

  Relationship to Information and Technology Goals:

  Goal 1 – integrated solutions and services
  Goal 2 – standardized data

  Status: The NWCG Fire Environment Committee has conducted informal data gathering and needs analyses.

  Action: Formally charter the Fire Environment Committee to complete its evaluation and develop a business case proposal for a future investment decision.

- *Public Fire Information*

  Purpose: Improve the capability to provide information to internal and external audiences at local, regional, and national levels about wildfire activity occurring on land under federal, state, and local jurisdictions, as well as wildfire related issues, in real time in a variety of formats on a multitude of platforms. Issues to address include identifying requirements, reviewing current capabilities (within wildland fire and external sites such as those supported by the Department of Homeland Security), consideration of new technologies (e.g. social networking capabilities and access on mobile device platforms) user support, and scalability.

  Relationship to Information and Technology Goals:

  Goal 1 – integrated solutions and services
  Goal 2 – standardized data
  Goal 3 – integrated connectivity

  Status: Informal data gathering and needs analyses has taken place.

  Action: Charter a project team to develop user requirements and a business case proposal for a future investment decision.

- *Integrated Fire Reporting Capability*

  Purpose: Create the capability to produce a single report of factual information for each incident regardless of ownership or protection responsibility. Entities who provide support for that incident can collect additional information unique to their agency/bureau and represent their resource contributions. This reporting capability should utilize data from operational reporting applications and geospatial data to minimize, if not eliminate, data entry by users. The outcome of this effort is to provide a clean, complete source of national historical fire occurrences and associated data.

  Relationship to Information and Technology Goals:

  Goal 1 – integrated solutions and services
  Goal 2 – improving accuracy of information; standardized data

Status: Informal data gathering and needs analyses including various studies and reports has occurred.

Action: Charter a project team to develop user requirements, alternatives and a business case proposal for a future investment decision.

- *Standardized Incident Support Capabilities and Processes*

Purpose: Use standards and technology to provide coordinated Information Technology resources in support of interagency wildland fire management and all risk incidents. The objectives and scope are to:

- Develop and recommend standards for incident-based hardware/network infrastructure
- Define, document, and maintain standards for the knowledge, skills, and abilities required for the Computer Technical Specialist (CTSP) position for incident support;
- Recommend security protocols to that align with IT industry and Governmental standards;
- Provide awareness and information on new and emerging technologies for incident support;
- Work to ensure coordination among all stakeholders at all levels to provide proper and efficient use of computer infrastructure in the support of incident management.

Relationship to Information and Technology Goals:

Goal 3 – secure, integrated environment

Status: Informal data gathering and needs analyses has taken place.

Action : Charter a project team to develop user requirements and a business case proposal for a future investment decision.

Infrastructure and Operations Review (FY 2012 – FY 2013)

At present the scores of applications and systems in the wildland fire information and technology portfolio are managed and operated largely independent of each other, with separate approaches to hosting, infrastructure, security, data storage, acquisition, licensing, and so on. In advance of longer term efforts to consolidate, integrate, and re-design the entire portfolio of applications to be more efficient there are opportunities to realize short-term savings.

An interagency team from the wildland fire information and technology organizations, working closely with the chief information offices in the Department of the Interior and the Forest Service should be convened to identify and evaluate opportunities for savings in procurement, hardware, licensing, and so on associated with the steady state operations and maintenance of existing investments.

4 - Implementation Plan

Introduction

This section sets forth recommendations for implementing the wildland fire information and technology Strategy, Governance and Management structure, and Investment plan. Implementation of the wildland fire information and technology program in these three areas builds on a number interagency structures and operating principles, but also represents a significant departure from current business processes and norms. Implementation must take place in the context of overall agency governance, and especially in the context of evolving governance and management of information management activities.

Thus this Implementation Plan is organized around four phases, beginning in FY 2012 and continuing into FY 2015, that are based on logical dependencies as well as on the capacity of the various affected organizations and stakeholders to absorb and manage changes to business processes, roles and responsibilities, and program goals and outcomes. Appendix 4 contains a summary chart of implementation dates for all phases.

Implementation will require dedicated, concentrated, and ongoing engagement by senior management, various stakeholder organizations, and a project management organization with responsibility for guiding implementation.

Agency Acceptance as a Crucial Condition

The ability of the wildland fire community to move ahead with implementation is conditional and dependent on the Department of the Interior and the Department of Agriculture (US Forest Service) accepting and approving the fundamental underlying concept: *joint, common decision making on investments and the management of those investments.* Without agreement between the two Departments on that approach the ability to plan and manage wildland fire information and technology will fail.

Phase 1: Decision and Acceptance (March/April 2012)

Phase 1 constitutes agency acceptance of the proposed interagency wildland fire information and technology program, specifically the establishment of the authority for the approach to governance and management through an interagency agreement. Phase 1 also includes standing up a project management team and structure to lead, guide, and oversee implementation.

The interagency agreement (memorandum of understanding) should be a "constitutional" document issued at the highest level necessary to commit both Departments to managing wildland fire investments on an interagency basis. The agreement should include:

- Developing an approach for common, joint approval of wildland fire interagency strategies, architectures, and investments
- Establishing and empowering the Wildland Fire Information and Technology Executive Board
- Setting forth the principles, concepts, and expectations for the wildland fire information and technology program for implementation by the Executive Board

- Defining principal roles and responsibilities of wildland fire governance groups

A project management approach is needed to ensure that the wildland fire information and technology program is implemented in a timely and systematic method through designation of executive direction and chartering of a Project Implementation Team. Consideration should be given to using a 1-2 year term employee to lead the implementation team to provide sufficient resources to the effort.

Phase 1 Actions and Target Dates

- Agency acceptance of proposed approach ..... *April 2012*
  - Federal Fire Policy Council
  - Agency Chief Information Officers
- Assignment of Executive Direction for implementation ..... *April 2012*
- Establishment of Project Implementation Team ..... *April 2012*
- Development and approval of Memorandum of Understanding ..... *April 2012*
- Establishment of initial Executive Board ..... *April 2012*
- Outreach and communications to stakeholders ..... *March/April 2012*

Phase 2 – Initial Operating Capability (FY 2012)

Phase 2 provides Initial Operating Capability (IOC) of the wildland fire information and technology program to:

- Provide consistent and cohesive management of ongoing activities
- Provide interim direction and oversight
- Support agency budget and investment decision processes
- Develop detailed requirements and structures for the program
- Begin transition to full implementation of the program

The Executive Board will begin to provide consistent and integrated guidance for the wildland fire information and technology program. Under direction of the Executive Board and the designated executive leadership for implementation, the Project Implementation Team will be responsible for identifying the capabilities necessary to provide IOC, along with development of a project implementation plan to guide future requirements and actions. The Executive Board will be responsible for approving the initial operating capability.

Initial operating capability includes establishment of basic business rules and processes; preliminary membership, functions, and roles for the Program and Domain Boards; development of architectures and standards outlined in the objectives under Goals 1 and 2 of the Strategy; and producing an initial five-year investment plan to guide FY 13/14 investment decision making.

During this phase, substantial work will take place to develop and complete architectures and standards as outlined in the Investment Plan. As also shown in the Investment Plan during this phase, projects will be chartered to develop business requirements for future investments in five high priority areas and to begin a review of infrastructure and operations of current applications and systems.

Initial Operating Capability is expected to be in place by the end of FY 2012.

Principal actions and target dates are shown below. Additional schedule detail for specific actions is found in the Investment Plan.

Phase 2 Principal Actions and Target Dates

- Charter business cases for potential future investments ..... *May 2012*
- Charter infrastructure and operations review ..... *May 2012*
- Develop Project Plan and Schedule ..... *June 2012*
- Communication/outreach activities to all stakeholders regarding the principles, direction, and implementation of the wildland fire information and technology program ..... *Ongoing*
- Establishment of basic business rules and processes ..... *September 2012*
- Establishment of preliminary membership, functions, and roles for the Program and Domain Boards ..... *September 2012*
- Begin development of architectures and standards outlined in the objectives under Goals 1 and 2 of the Strategy ..... *July 2012*
- Producing an initial five-year investment plan to guide FY 13/14 investment decision making ..... *August 2012*

Phase 3 – Completing the Details (FY 2013)

During Phase 3 the initial operating capabilities of Phase 2 will be formalized and completed. By the end of Phase 3 business processes and organizational structures will be fully competed and in place, along with the process for producing an annual five-year rolling investment plan. Target architectures and standards will be completed. A comprehensive transition plan from "As Is" to "To Be" will be incorporated into the five-year plan, including a process to evaluate the entire portfolio for alignment with the target architectures.

The Project Implementation Team's activities will transition to the permanent governance and management structures during this phase and the team will terminate at the end of the phase.

Phase 3 Principal Actions and Target Dates

- Communication/outreach activities to all stakeholders regarding the principles, direction, and implementation of the wildland fire information and technology program ..... *Ongoing*
- Complete business cases for potential future investments ..... *October 2012*
- Complete infrastructure and operations review ..... *March 2013*
- Final business rules and processes ..... *September 2013*
- Final membership, functions, and roles for the Program and Domain Boards ..... *September 2013*
- Complete architectures and standards outlined in the objectives under Goals 1 and 2 of the Strategy ..... *September 2013*
- Five-year investment plan ..... *September 2013*

Phase 4 – Steady State/Continuous Learning (FY 2014)

Phase 4 begins steady state implementation of the full capabilities and functions of the wildland fire information and technology program. Steady state operations should include explicit provisions for capturing lessons learned (successes and failures) and continuing to adapt processes and structures in response to those lessons.

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APPENDICES

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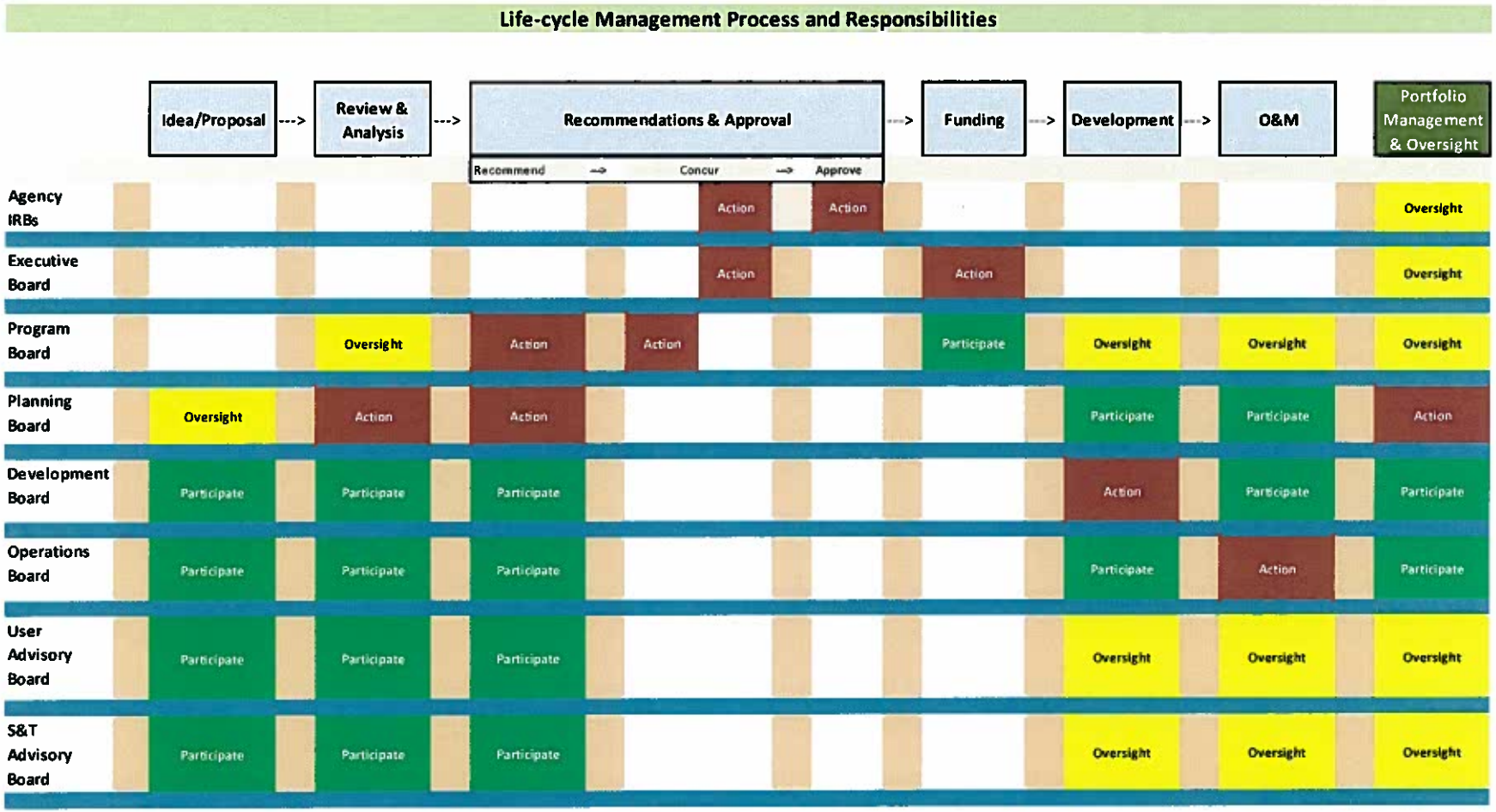
Appendix 1: RACI Chart for Wildland Fire Information and Technology Functions

RACI **R** = Responsible for achieving the activity **A** = Accountable for completion of the activity **C** = Consulted for their expertise **I** = Informed and kept up to date		**AGENCY MANAGEMENT GOVERNANCE**					**WILDLAND FIRE GOVERNANCE**							**WILDLAND FIRE I&T GOVERNANCE**							
		DOI Mgt.	FS Mgt	FS & DOI IRBs	DOI CIO	FS CIO	WFLC	W-FEC	FFPC	NWCG Exec Bd	FAM/OWF	Fire Directors	NWCG Committees	Executive Committee	Governance Board	Program Board	User Advisory Board	S& T Advisory Board	Planning Board	Development Board	Operations Board
Primary Function	**Secondary Function**																				
Strategic Business Alignment, Policy, and Planning	Business requirements	C	C	I	I	I	A	A	A	C	R	C	C	I	I	I	C	C	I	I	I
	Business priorities		C	I	I	I	R	R	R	C	A	C	C	I	I	I	I	I	I	I	I
	I&T policy within the business area	I	I	I	C	C	I	I	I	C	C	C	C	A	A	R	C	C	C	C	C
	I&T strategy to align with business requirements and priorities	I	I	A	C	C	I	I	I	C	C	C	C	R	R	C	C	C	C	C	C
	Compliance with agency I&T policies and procedures	I	I	I	C	C	I	I	I	I	I	I	I	I	I	A	I	I	R	R	R
	Governance for I&T program	I	I	I	C	C	I	I	I	C	C	C	C	A	A	R	C	C	C	C	C
Line of Business/ Segment Architecture and Standards	Business architecture	I	I	I	I	I	I	I	C	C	C	C	C	A	A	R	C	C	C	C	C
	Application architecture	I	I	I	C	C	I	I	I	C	C	C	C	A	A	C	C	C	R	C	C
	Data architecture	I	I	I	C	C	I	I	I	C	C	C	C	I	I	A	C	C	R	C	C
	Technology & infrastructure architecture	I	I	I	C	C	I	I	I	C	C	C	C	I	I	A	C	C	C	C	R

RACI R = Responsible for achieving the activity A = Accountable for completion of the activity C = Consulted for their expertise I = Informed and kept up to date		AGENCY MANAGEMENT GOVERNANCE					WILDLAND FIRE GOVERNANCE							WILDLAND FIRE I&T GOVERNANCE							
		DOI Mgt.	FS Mgt	FS & DOI IRBs	DOI CIO	FS CIO	WFLC	W-FEC	FFPC	NWCG Exec Bd	FAM/OWF	Fire Directors	NWCG Committees	Executive Committee	Governance Board	Program Board	User Advisory Board	S&T Advisory Board	Planning Board	Development Board	Operations Board
Primary Function	**Secondary Function**																				
	Security architecture	I	I	I	C	C	I	I	I	C	C	C	C	I	I	A	C	C	C	C	R
	Strategic plan for architecture implementation	I	I	I	C	C	I	I	I	C	C	C	C	A	A	R	C	C	C	C	C
	Annual workplans for architecture implementation	I	I	I	C	C	I	I	I	C	C	C	C	A	A	R	C	C	C	C	C
Line of Business/ Segment Investment Planning and Management	Investment and portfolio prioritization	I	I	I	C	C	I	I	I	C	C	C	C	A	A	C	C	C	R	C	C
	Investment and project planning	I	I	I	C	C	I	I	I	C	C	C	C	A	A	C	C	C	R	C	C
	Investment and project management	I	I	I	C	C	I	I	I	C	C	C	C	I	I	A	C	C	R	R	R
	Investment portfolio management/ oversight	I	I	I	C	C	I	I	I	C	C	C	C	A	A	C	I	I	R	C	C
Line of Business/ Segment Operations Management	Methods and frameworks for delivery of services	I	I	I	C	C	I	I	I	C	C	C	C	I	I	C	C	C	C	C	R

Appendix 2: Life-Cycle Management Roles and Responsibilities



Appendix 3: Wildland Fire I&T Investment Plan Summary

	Contributing work is underway
	Formal, focused effort
	Measurable, ongoing activity

ROLLING FIVE-YEAR PLAN DEVELOPMENT (FY 2012 – FY 2014)

	FY12-1	FY12-2	FY12-3	FY12-4	FY13-1/2	FY13-3/4	FY14	FY15	FY16
Develop five-year plan components and format									
Develop five-year planning process									
Create and maintain rolling five-year plan									

FUTURE BUSINESS DESIGN AND REQUIREMENTS (FY 2012 – FY 2013)

	FY12-1	FY12-2	FY12-3	FY12-4	FY13-1/2	FY13-3/4	FY14	FY15	FY16
Establish Team									
Develop Target Business Architecture									

Interim Action Plan (FY 2012 – FY 2014)

I&T Program Implementation (FY 2012 – 2014)

Objective	FY12-1	FY12-2	FY12-3	FY12-4	FY13-1/2	FY13-3/4	FY14	FY15	FY16
G1. Integrated solutions and services that enable informed, timely, documented business decisions.									
Update As-Is Business Model									
Develop Target Business Architecture									
Refresh Business Model Requirements (e.g. data, apps,									
Complete Target Applications Architecture & Standards									
Implement Target Applications Architecture & Standards									
Develop Migration Plan									
Implement Migration Plan									
G2. Accurate, consistent, reliable and accessible data and information across landscapes, organizations, applications, programs and platforms.									
Establish Data Management Program Governance									
Implement Data Management Program									
Complete Target Data Architecture & Standards									
Implement Target Data Architecture & Standards									
Refresh and Expand Data Inventory (e.g. metadata,									
Revise Logical Data Model									
Identify Authoritative Data Sources									
Review & Update Data Stewardship									
Continue Data Standards Development (Core & New)									
G3. A secure, integrated environment that enables efficient, effective voice and data interconnectivity and accessibility regardless of organization affiliation or user location.									
Identify and Revise "Roadblock" Policies and Procedures									

Objective	FY12-1	FY12-2	FY12-3	FY12-4	FY13-1/2	FY13-3/4	FY14	FY15	FY16
Refine Target Infrastructure/Technical Architecture &									
Develop Target Security Architecture & Standards									
Implement Target Infrastructure/Technology/Security									
Refresh Infrastructure Inventory (voice and data)									
G4. Technologies, Research & Innovation Enable and Enhance Wildland Fire Business.									
Develop Plan to Invest in Innovation and Exploration of									
Develop Process to Identify & Communicate Research									
Develop an Efficient, Simple Process to Test, Submit,									

Develop Business Requirements to Inform Potential Future Investments (FY 2012)

	FY12-1	FY12-2	FY12-3	FY12-4	FY13-1/2	FY13-3/4	FY14	FY15	FY16
Computer Aided Dispatch									
Weather Data Consolidation									
Public Fire Information									
Integrated Fire Reporting Capability									
Standardized Incident Support Capabilities and Processes									

Infrastructure and Operations Review (FY 2012 – FY 2013)

	FY12-1	FY12-2	FY12-3	FY12-4	FY13-1/2	FY13-3/4	FY14	FY15	FY16
Establish review process									
Conduct review									

Appendix 4: Wildland Fire I&T Implementation Summary

	Contributing work is underway
	Formal, focused effort
	Measurable, ongoing activity

	FY12				FY13				FY14	FY15
	1	2	3	4	1	2	3	4		
Phase 1: Decision and Acceptance										
Agency acceptance										
Assign executive direction										
MOU development and approval										
Establish Project Implementation Team										
Establish Executive Board										
Outreach and communications										
Phase 2: Initial Operating Capability										
Project plan and schedule										
Outreach and communications										
Initial business and operating procedures										
Initial Board membership and functions										
Begin development of architectures/standards										
Initial Five-year plan										
Charter high priority business case development										
Charter infrastructure/operations review										
Phase 3: Completing the Details										
Outreach and communications										

	FY12				FY13				FY14	FY15
	1	2	3	4	1	2	3	4		
Complete high priority business cases										
Complete infrastructure/operations review										
Final business rules and processes										
Final Board membership and functions										
Complete architecture and standards										
Five-year investment plan										
Phase 4: Steady State/Continuous Learning										
Outreach and communications										
Annual updating of Five-year investment plan										
Adjustments to structures and procedures										

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